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Sanitary Engineer

Plumber and Steamfitter of Canada

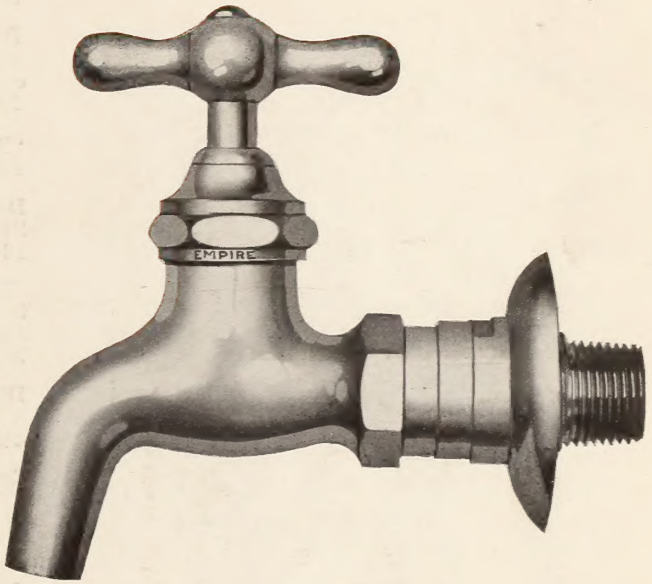
Vol. XVI. PUBLICATION OFFICE, TORONTO, JANUARY 1, 1922 No. 1

Another New Empire Product

The "Emco"

Adjustable

Box Flange Bibb



This new bibb replaces our old style fixture that displayed unsightly threads.

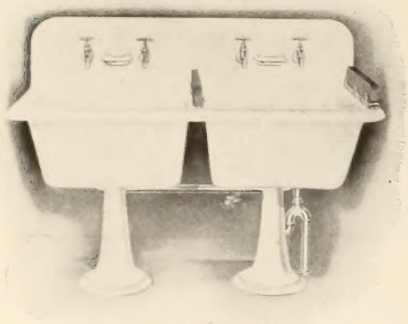
It is adjustable to the space between the sink and the connection back of it. The flange is made with an extra long threaded shoulder which covers the threads on the shank of the bibb preserving its attractive appearance.

Specify your needs—We guarantee prompt delivery and thorough satisfaction.

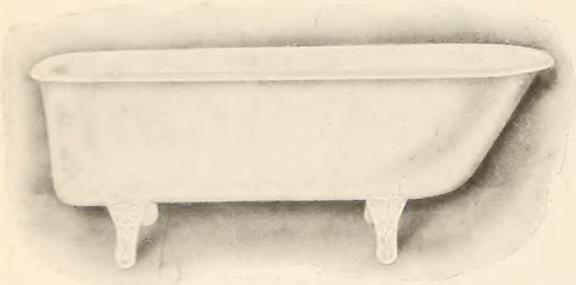
"All troubles are gone when 'Emco' goes on."

Empire Brass Manufacturing Co., Limited

London and Toronto, Canada



Porcelain Enameled 2-Section Laundry Tubs



"Maple Leaf" Porcelain Enameled Bath

Porcelain Enameled One-Piece Lavatory

Beaver Brand
Porcelain Plumbing Enamel Fixtures

"Beaver" Porcelain Enameled 2-Section Laundry Tub with roll rim, cast in one piece, with separate enameled recessed back, on painted iron legs. Complete with wringer holder, N.P. soap dish, plugs and stoppers, painted exterior.

Dimensions—Length over all, 49½ inches; height from floor to top of tub, 31 inches; height from floor to top of back, 43 inches; front to back outside, 25½ inches; front to back inside, 21 inches; depth inside, 14½ inches.

"Beaver" Porcelain Enameled Bath with 3-inch roll rim, for Bell supply and waste fittings, painted exterior.

Dimensions—Width over rim, 29¼ inches; inside width, 23 inches; height to top of rim, 21¾ inches; inside depth, 16 inches.

"Beaver" Porcelain Enameled One-Piece Lavatory is illustrated above with apron, oval-shaped basin with rear outlet. Patent overflow and chain stay, on concealed brackets.

Dimensions—Size of lavatory, 16 x 20 inches; basin, 10 x 14 inches; height of back, 8½ inches; depth of apron, 4¼ inches.

Roughing in measurements—Centre to centre of supplies, 11½ inches; centre of outlet to wall, 6¼ inches; centre of supplies to wall, 3½ inches.

Amherst Foundry Co. Limited

General Offices and Factory:

AMHERST, N.S.

AGENTS:

Ontario:
Monarch Brass Mfg. Co.,
71 Brown St., Toronto

Manitoba and Northwest:
E. B. Plewes,
197 Princess St., Winnipeg

Make 1922
A Canadian Vitreous Year

Why should huge quantities of closets, tanks and lavatories be imported into Canada every year, when CANADIAN SOLID VITREOUS fixtures are procurable through any recognized jobber from Halifax to Vancouver?

Canadian Solid Vitreous is an all-clay ware—burned twice.

It has a live-white lustrous glaze surface—clean and sanitary.

Not only is the glazed surface of this ware vitreous, however—the body itself is vitreous, being blended from very finely ground clays and rocks, moulded with infinite care and fired under extreme heat.

Each piece is built in a substantial weight, its inherent strength ensuring a life-time of service; its permanent hard white surface—as easily cleaned as a china plate—ensuring the same spotless appearance after years of use; its vitreous make-up ensuring absolute freedom from the contamination of dangerous acids or germs which many wares are liable to absorb.

A range of several hundred patterns gives a selection to suit almost any individual taste.

The low cost of Canadian Solid Vitreous ware is the final argument in favor of its exclusive use.

THE "LAKESIDE"

A syphon jet closet of unusual merit; modelled on lines of dignified simplicity, yet substantially massive in both design and weight. It has a strong syphonic action, large water area and deep seal.

The illustration shows this closet with extended front lip and raised rear vent features; we can furnish it also with raised front lip, integral seat, cutout back, side supply, local vent and many combinations of these.

THE "BELLEMEADE"

No material has yet been discovered for the manufacture of closet tanks which for a moment can compare with Canadian Solid Vitreous ware.

The tank is one solid piece, glazed inside as well as out; is absolutely non-absorbent; there are no seams or joints to open up; no lining to corrode or leak; no paint nor varnish to discolor or wear off; no material to warp or split.

Made in two sizes—the smaller for use with any washdown type of closet—the larger for syphon jets.

CANADIAN POTTERIES
LIMITED

SAINT JOHNS
QUEBEC

Sales Handled Exclusively Through Recognized Jobbing Houses

IF

The public only knew as much about the benefits of domestic sanitation as you and I do,

IF

They realized how much more important it was for their own sakes to have homes properly equipped from a plumbing standpoint than to possess costly non-essentials.

IF

Every woman could be as proud of her bathroom as of her living room; if every house owner was familiar with the material he should insist on when replacing his antiquated conveniences.

Then the plumbing business would indeed be one soft snap.

But he must show them. Let's tell him when we see them—and take every opportunity of displaying our goods suitably in our place of business.

Canadian Brass Company Limited

Galt Toronto

The Spencer
—and a Better Year
In 1922

Hot Water—10 sizes
600 to 3600 sq. ft.

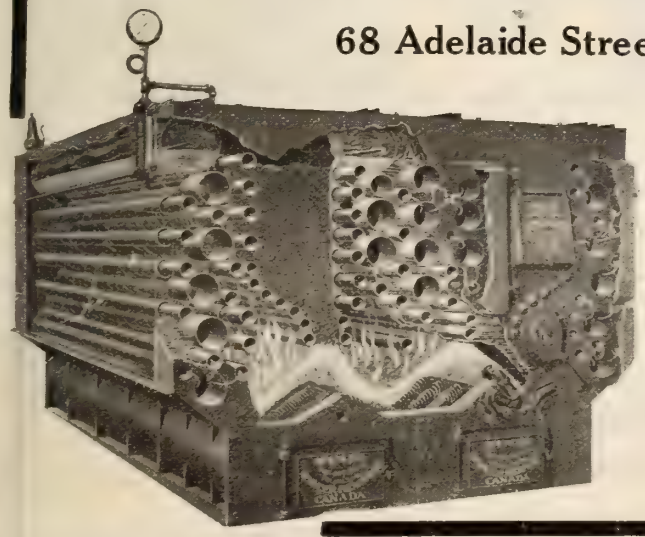
One reason for the ever increasing sale of the Spencer is the fact that the Spencer burns even the No. 1 Buckwheat coal. Each owner positively saves from THREE to FIVE DOLLARS on every ton of coal used. Naturally all users are enthusiastic boosters. Boosts from users mean sure sales—are you getting your share?

There is a Spencer for every need. Thousands have been in operation, in all types and sizes of buildings, in all parts of North America.

The Spencer will mean a bigger business for you in 1922. Nowadays every home owner is interested in economy of fuel. For that ability of the Spencer to burn the cheaper grades of coal as well as the more expensive is now a wonderful sales factor.

Spencer Heater Company of Canada, Limited

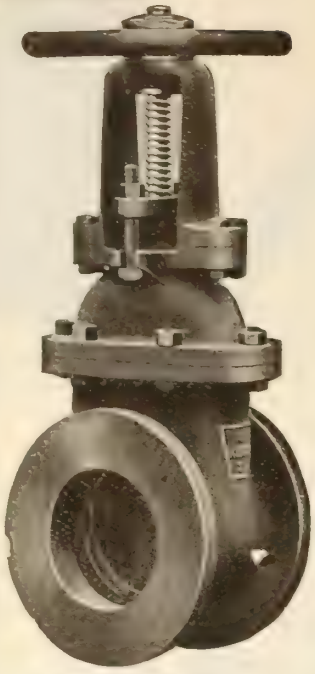
68 Adelaide Street East - Toronto, Ontario



PLANT
Penetang, Ont.

WINNIPEG, MAN.
185 Portage Ave., E.

MONTREAL, QUE.
71 St. James Street



Kerr Valves

Give

Character to Work

They reflect credit on the man who specifies them, the man who installs them, and they give complete satisfaction to the men who use them.

Take the Kerr Gate Valve illustrated, for instance: It is well designed; strong and sturdily made; note the compact and narrow face to face dimensions; observe the accessibility of the stuffing box; the strong, generous flanges and the properly spaced bolting.

KERR VALVES ARE GOOD VALVES

Catalogue No. 5 on application.

The Kerr Engine Co., Limited

Valve Manufacturers - Walkerville, Canada

Do You Read These Advertisements?

Every advertisement in this magazine is worth reading. It is the product of some concern that is using a modern piece of selling machinery— technical paper advertising—to present most effectively to you the leading features of its line.

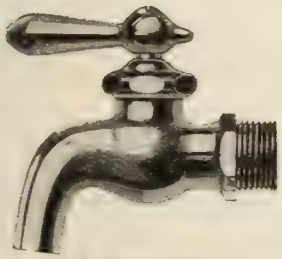
These advertisers are making it easier for you to buy intelligently with the least waste of your time and theirs. They realize that a sales force can not replace this service at equal cost. They know that advertising is good business, for the manufacturer who does not advertise cannot save the cost of advertising. Consistent advertisers are progressive merchandisers. They are saving your money and their own; and it pays to do business with them.

Don't miss your opportunities. These advertisements are interesting. Some are distinctly instructive, and a glance through them every month will keep you posted on the latest developments in Sanitary Engineer.

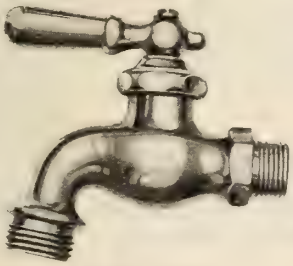
QUICK DELIVERY

A-3200 Bath Cock

A-3500 Bath Cock



A-200 Bibb



A-202 Bibb

Immediate delivery *from stock* of these matchless, quick-opening Quaturn Plumbing Goods.

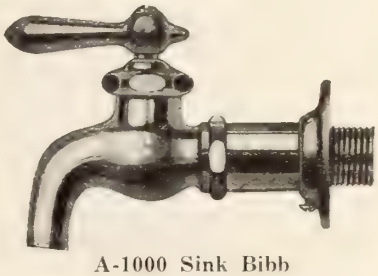
Standardized Goods with *working units*, interchangeable throughout all styles, *closing with the pressure.*

Only the working units to renew, *the bodies stay installed permanently.*

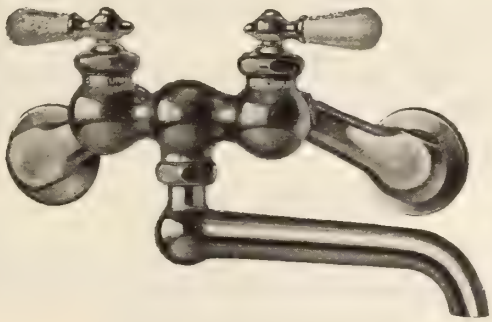
Your jobber can supply these, if not write us direct.

A-1900 Basin Cock

A-2000 Basin Cock



A-1000 Sink Bibb



A-100 Sink Mixing Faucet

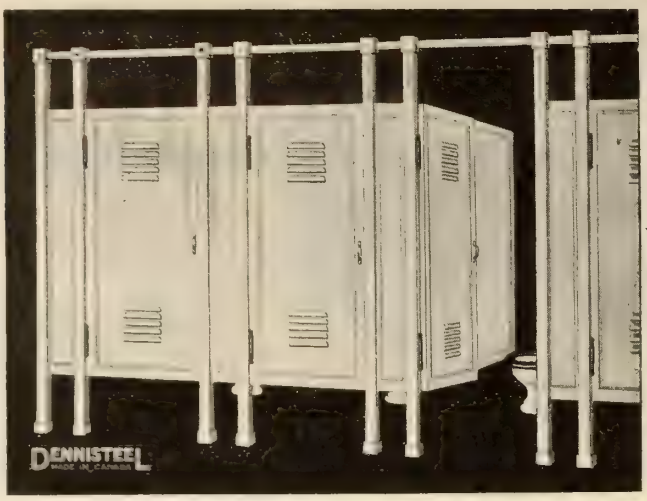
A-1002 Sink Bibb

The Wallaceburg Brass & Iron Manufacturing Co., Limited

WALLACEBURG, ONT.

TORONTO:
Mr. L. N. Vanstone, 10 Wellington St. East
Telephone: Main 2355

WINNIPEG:
Moncrieff & Endress, Ltd., Galt Bldg.
Telephone: A 9135



The Public Are Demanding

DENNISTEEL
Made in Canada

Steel Lavatory Compartments

—"Hygienic—Fireproof—Non-Markable"—For Schools, Factories and Public Buildings.

In principal cities all over Canada this sanitary equipment is installed in many of the public buildings. The people have learned its advantages.

It is the sanitary engineer who is familiar with Dennisteel Lavatory Compartments who will secure the order for the next public building in your district.

We are the only firm in Canada specializing in the manufacture of Steel Lavatory Compartments.

Write for new illustrated circular, showing how Dennisteel Compartments harmonize with the most elaborate fixtures and surroundings.

We Also Make

Steel Lockers, Steel Cabinets, Steel Shelving, Steel Chairs and Stools, etc., Ornamental Iron and Bronze, Commercial Wirework of all Kinds, General Builders' Ironwork, "Boca" Solid Steel Sash.

Write for Folders

THE DENNIS WIRE AND IRON WORKS CO. LIMITED
LONDON
CANADA

Ottawa
Windsor
Vancouver

Halifax
Toronto
Winnipeg

Montreal
Hamilton
Calgary

SANITARY ENGINEER
PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907 PUBLISHED TWICE MONTHLY

Vol. XVI. PUBLICATION OFFICE, TORONTO, JANUARY 1, 1922 No. 1

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H. V. TYRRELL, *General Manager.*

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Wives and Daughters Appreciate Beauty

How often is the final decision left to the women of the household? More often than we believe. Attractive displays of "Standard" plumbing fixtures will appeal to, and satisfy those wives and daughters who appreciate beauty of design as well as quality and service.

Standard Sanitary Mfg. Co.
Limited

General Office and Factory: Royce and Lansdowne Aves., Toronto, Ont.

Toronto Store:
55-59 Richmond Street East
Calgary:
325 Eighth Avenue West

Winnipeg Showrooms:
76 Lombard Street
Hamilton Store:
26-28 Jackson Street West

Montreal:
New Birks Bldg.
Vancouver:
860 Cambie Street

"Made In Canada"

Established 1907

Circulates Throughout Canada

Sanitary Engineer
Plumber and Steamfitter of Canada

Published First and Fifteenth of Month

Vol. XVI. TORONTO, JANUARY 1, 1922 No. 1

Stimulating Plumbing Trade in 1922

While Outlook is Good For Considerable House Building Early in the Year There is Yet Much Replacement and Renewal Business in Plumbing and Heating Lines to be Done—Prices Reduced Approximately 30 Per Cent. During 1921

DISCUSSING business conditions and the outlook for 1922 in the plumbing and heating industry, a number of interesting opinions and helpful suggestions have been conveyed to Sanitary Engineer by various manufacturers and wholesalers.

Pointing out that the future is exactly what we make it, G. E. Fisher, Manager Canadian Brass Co., Ltd., Galt, Ont., states:

"We do not think any forecast that we might make as to the possibilities of the plumbing business in 1922 would correct the absence of activity in this particular line. It has always been our belief that the future is not a guess or a gamble, it is exactly what we make it and if those interested in the sale and installation of sanitary ware and appliances were to start from January 1st to do their share to market the product with which they have associated themselves, there would be no complaint as to 'dull' business. The absence of new building or the lack of industrial developments is not altogether responsible for a lesser number of plumbing installations. The real field exists in the established houses, factories and public institutions, but it is regrettable to say that the trade (and we mean ourselves and jobbers) has seriously failed to develop this market.

A Fruitful Field

"In the first three months, if experience tells us anything, it is bound to be reasonably quiet and everybody will be content to sit down and wait for the so-called building boom in the spring. These three months are an opportunity to the plumbing trade to make business by replacements, renewals and additions to existing plumbing installations, and suggestions should be made to the trade, the jobber and the manufacturer that they forget for a period at least the far distant future and put in some hard work and long hours developing some immediate business from the field above referred to."

Another Western Ontario manufacturer of plumbing goods states:—

"We submit that it is difficult to predict what is likely to transpire in 1922. Our records indicate that to date the volume of business with which we have been favored this year up to the end of November represents between 70% and 80% of the volume for the same period in 1920, which is most significant when considered in conjunction with the fact that in January, 1921, our prices had been reduced approximately 30%.

"The year 1922 should show renewed activity particularly in the building of homes. Statistical information assembled from different sources indicates that the index number applying to a number of commodities has advanced within the past two months, which cannot, however, be accepted as indicative of the general trend. We don't anticipate further reductions on the lines we offer; on the contrary, advances in specific items may be necessary. Reports indicate that commissions for public buildings, hotels, hospitals, schools, etc., in large volume have been placed with architects which will provide considerable activity to all interested lines."

Sheet Production at Low Ebb

Discussing the sheet outlook for the first quarter, 1922, A. T. Enlow, President Dominion Sheet Metal Corporation, Hamilton, Ont., stated that at the present time production of sheets, black and galvanized, is at a low ebb not only in Canada but in the United States as well. This bears out common practice in curtailing operations during the holidays and for inventory and repair purposes.

"Sheets have a habit of coming back strongly," continued Mr. Enlow, "and sometimes unexpectedly, but they will naturally have only a corresponding degree of activity in relation to the general prosperity in other lines of business and particularly manufacturing.

"The United States mills stabilized prices in the early fall and did quite a large volume of business and at prices which were an advance over those previously ruling, the same tendency being observed in Canada.

"There has been a reduction in freight rates in Canada but none in the United States applying to general commodities and a very vigorous effort is being made in the line of a freight rate reduction there which, if successful, will mean somewhat reduced prices on all iron and steel products.

"The steel industry, which at first was somewhat slow in deflating, has in the end deflated to a very marked extent, second only to that of farm products, and has now reached the stage where any further reduction in prices must be based upon reduction in freight rates.

"Stocks, both galvanized and black sheets, throughout Canada are quite low and it is presumed that buyers will continue the same policy until a definite trend occurs in the market and this will probably develop in the first few weeks of the New Year and until that time 'easy is the word.'

"It will be well to bear in mind, however, that any changes which may occur in prices, either up or down, will be relatively small as compared with the fluctuation during the past two or three years."

(Continued on Page 11)

Market Developments During 1921 Establish Big Decline in Prices

Current Quotations on Sanitary and Plumbing Supplies Now Compare Favorably With Pre-War Levels and Also Prevailing Price Standards in Other Lines of Trade—Production Costs Handicap Further Recessions With Raw Material Prices Recording a Fair Ratio of Liquidation—Quotations on Range Boilers Drop 42 Per Cent. During Year—Optimistic Tone Prevails—Future Outlook.

AN UNUSUAL degree of market developments during the past year resulted in the establishment of substantially lower price levels on a large percentage of steam-fitting and sanitary supplies.

Practically all lines of plumbing materials have recorded substantial price reductions. Changes in the current markets have been many and varied, with announcements of recessions in quotations on plumbing and steam-fitting materials having followed one another in rapid succession throughout each succeeding month.

In reviewing the market developments during 1921, it can readily be seen that there has undoubtedly occurred a larger ratio of price changes in sanitary and similar supplies, than in any other similar period in the history of the trade.

Recessions on the majority of commodities have been evident from time to time, and while some minor changes were of a slight upward nature, such developments were mainly of short duration with consequent temporary effects. The general tendency has been in the downward direction, with some lines registering substantial declines. Other supplies did not immediately record such drastic revisions, but periodical changes have placed the average market price on a much lower level.

How Prevailing Prices Compare

Both manufacturers and distributors have issued many price revisions during recent months, with the result that present prices on the majority of plumbing and steam-fitting fixtures compare favorably with pre-war levels. The process of liquidation in such supplies has been reluctantly accepted in some instances, while other cases are on record where attempts were made to dispose of stocks of high priced materials prior to announcing easier quotations. In a few markets, reductions were withheld until the actual disposal of goods produced when raw material costs were at their height was assured. On the whole, however, existing levels indicate a large proportion of price concessions which will undoubtedly stand very favorable comparison with current price standards in other branches of trade.

One especially strong feature of the current price trend in sanitary markets is found in the fact that the major portion of the revisions referred to occurred during the last five or six months; in other words, after the season's anticipated requirements had been contracted for.

Cost Levels a Handicap

It is generally admitted that present production costs still remain considerably above 1914 standards by reason of the existing higher freight rates and the still inflated wage scales prevalent in some quarters. These primary factors which enter into operating and distributing expenses, tend to prevent prices on finished products from further receding at the present time. Under such circumstances, future declines are expected to be based upon such recessions as may appear from time to time in the primary markets, with such basic elements forming the contributory causes. Therefore, it is pointed out that concessions are not generally anticipated on the same scale that has been evident in recent months, but that minor changes may appear in the future, especially on certain products. On the average, a moderate share of liquidation has already been established, and further steps in this direction are dependent upon the swing of the price pendulum in raw materials and similar costs.

Raw Materials Lead Recession

Manufactured articles in general have been reduced in comparison with basic commodities, but on the other hand, raw materials have undoubtedly registered the largest percentage of price reduction, and have rightly taken the lead in this respect. Bar iron and steel represent basic commodities which have paved the way in the matter of price readjustment during the past year. Corrugated sheets, and both black and galvanized sheets are also considerably below the price levels of January, 1921. Many other semi-finished products record big recessions and now well compare with 1914 standards, among these being copper and brass sheets, ingot metals, scrap materials, and similar goods.

These conditions should tend toward a more substantial market during the ensuing year, with encouraging prospects for general business expansion in future months. With price concessions on a more or less generous scale having become generally recognized, a more extensive program of building activities is expected to be instituted in 1922. Improvement in this direction was to some extent handicapped throughout the summer of 1921, but with costs of plumbing and sanitary fixtures now on much lower levels, and with similar steps being taken in other phases of building costs, the looked for volume of trade in construction work has undoubtedly better opportunities of materializing.

As an example of the actual extent of price reduction during 1921, quota-

TRIALS AND TRIBULATIONS OF THE POOR PLUMBER

Grimsby, Ont.—"Jimmy" Wray has a little rubber stamp that he uses on his bill heads. This stamp is just a reminder of the fact that he needs money to carry on the business and reads, "If you were me, and I were you, what would you expect me to do with this account?" One of his last month's statements elicited this gem of poetry, written across the face of the "argument":

"If you were me and I were you
I'd cuss you out and then a few;
I'd send a dunner every day,
And do my best to make you pay,
I'd put you in the calaboose,
Starve you awhile and turn you loose;
Then if you didn't come across,
I'd write you off my book as loss.
But have you ever noticed this:
Just when your efforts seem amiss,
Some how or other I make the grade?
And Lo! that damned account is paid.
Receipts I get signed 'Jimmy Wray,'
We live to trade another day.
All jokes aside; I've done my best:
Now may the gods attend the rest."

James Wray is going to get a copyright on the poem and use it in his advertising matter.

tions on range boilers offer a representative average. The level on the 30-gallon standard size was quoted at $15 each on January 1, 1921. This price has continually dropped throughout the year until prevailing quotations are in the neighborhood of $8.75. This reduction on these products, therefore, has been approximately 42 per cent. While a true and accurate comparison can only be achieved by compiling a list of a varied line of commodities, yet illustrations chosen at random—such as in this case—supply concrete price arguments for the merchant. While the percentage of decrease noted in the range boiler market might be considerably higher than the average ratio of decline in other lines of finished products, yet there are undoubtedly a number of other goods showing just such similar recessions. These factors can be readily ascertained by referring to the repeated efforts to reach easier levels having been recorded in the various market reports contained in Sanitary Engineer.

A more optimistic note and cheerful sentiment generally is usually found underlying the present markets, and this factor is noted in spite of the current dull period. A general survey of the situation, therefore, provides a useful attribute in planning for healthy trade activity in the ensuing year, or when taking into consideration the probabilities of future busness expansion and commercial development in general.

Together with this article there also appears a condensed table of prices on a few general lines. The list depicts the costs of pre-war days, the high levels attained in recent years, and also the present prices. A most marked degree of recession from the pinnacle of a few months previous is noted therein, and it is worthy of record that the major portion of such reductions have materialized during 1921.

Prices At A Glance

	Unit	August, 1914	High level	Present price
Brass sheets	lb.	$0.26	$ 0.60	$ 0.24
Range boilers (30-gal. std.)	each	5.00	15.00	8.75
Bar iron (base)	cwt.	2.05	5.15	2.90
Bar steel (base)	cwt.	2.25	5.30	3.00
Ingot tin	lb.	0.30	1.30	0.39
Ingot copper	lb.	0.14½	0.35	0.18
Ingot lead	lb.	0.05¼	0.13	0.06¾
Ingot spelter	lb.	0.05½	0.23	0.07¼
Antimony	lb.	0.08½	0.40	0.09
Aluminum	lb.	0.19	0.66	0.27
Bar solder (strictly)	lb.	0.27	0.60	0.24½
Black sheets (28 ga.)	cwt.	2.70	10.50	4.50
Corrugated sheets (28 ga.)	cwt.	4.00	12.00	6.50
Galv. pipe (1 in.)	100 ft.	6.03	17.77	11.05
Lead pipe	lb.	0.07½	0.19	0.12
Plumbers' oakum	cwt.	3.50	10.00	7.00

THE above list is self-explanatory and supplies in a clear-cut and comprehensive manner the information which many merchants have been seeking. The various lines mentioned in this table are generally indicative of the average price standards which have prevailed in plumbing and steam-fitting supplies during the past eight years. Therefore the comparison is representative of other sanitary goods and fixtures, which, although not listed individually in the above table, will be generally found inclusive in the percentages of rise and fall.

Taking the quotations which prevailed at the outbreak of the war, and applying to this column the index figure of 100, is the generally accepted method of correctly estimating the ratio of increase and decline. On this basis of computation it is seen that prices on the average reached the high mark of 297, or an increase of 197 per cent. Figuring the current price level on the same principle indicates that quotations are now only 68 per cent. above the 1914 standard, the average prevailing cost being 168. This comparative rise and fall can be more easily ascertained when the proportion is ranged in the following form:

Aug., 1914	High level	Present
100	297	168

This illustration shows that prices have receded from the high levels recorded during the war and post-war periods to an extent represented by the figure 129. In other words, in order to put the present quotations back to the pinnacles attained during recent years, it would be necessary to increase to-day's prices on the various commodities listed above by 129 per cent. The fact that the prevailing prices are only approximately 68 per cent. higher than the August, 1914, levels, provides another illustration of just to what extent prices on plumbing goods have actually receded. This proportion of decline is also one that will undoubtedly compare very favorably with similar price trends in other lines of trade, or basic industries generally.

MONTREAL ENJOYS GOOD BUILDING YEAR

Montreal.—According to figures obtained from the city building department, Montreal has enjoyed a good building year in 1921, operations showing a substantial increase compared with one year ago. The total value of construction work so far this year amounts to $21,275,779, of which $18,523,429 represents new work, and $2,752,350 repairs to buildings.

Included in these figures is the $5,000,000 estimate for the new Mount Royal Hotel, and if this amount be deducted from the total, it would leave . balance of $16,000,000, which is about $2,000,000 more than the building records for last year show.

The year's work is of interest as regards buildings the statistics show that permits issued for the construction of $2.659 dwelling houses valued at $5,909,175; for 100 stores at $642.425; 1 theatre and 1 annex at $137,000; 37 warehouses at $855,200; 13 factories at $285.200; 6 churches and temples at $377,250; 6 schools at $1,370,948; 20 ice-houses at $87,450; 1 hotel at $5,000,000; 3 hospitals at $720.000; 1 brewery at $119,000; 10 office buildings at $1,515.897; 42 stables at $45,250; 803 sheds at $162,460 and 344 garages at $674,374.

Stimulating Plumbing Trade

(Continued from Page 9)

Discussing the business situation with Adam Taylor, sec.-treas. Taylor-Forbes Co., Ltd., Guelph, Ont., it was stated that the great problem before us at the moment is to get orders, as cutting of prices does not seem to increase them.

"We have been reducing prices ever since January, 1921, and all lines are down to rock bottom, based on cost of labor and raw material, and some lines are selling at actual cost and below to enable us to meet American competition," said Mr. Taylor.

"Freight rates are high, of course, and it will help some when they are reduced, particularly on heavy material such as pig iron. The freight distributed over all items does not amount to much.

"We don't know what effect a lower exchange will have. We will be able to report after such an event happens. We would only be guessing to predict.

"One thing we know is that stocks of general lines are very low. We receive rush orders and the jobber expects us to ship the same day—a thing that is almost impossible where so many lines are manufactured, and to order only."

Waits for the Budget

C. F. Stevens, Secretary Empire Brass Mfg. Co., Ltd., London, Ont. hesitates to make any prediction concerning business conditions in the plumbing and heating industry until after the budget is announced. "This, we think," says Mr. Stevens, "will have the greatest effect on business conditions."

The "Marking Act" as it Now Stands

Collectors Advised to Use Reasonable Discretion in Enforcement of New Regulations—Name and Address of Manufacturer Now Sufficient Without Marking "Made in ———"—Containers Imported to Contain Canadian Goods for Export Don't Need Marking

A NUMBER of important changes have been made in the Marking Act, which was outlined in its original form as affecting plumbing lines in a previous issue of Sanitary Engineer. The changes remove many of the most serious objections which have been outlined by manufacturers, importers and wholesalers. The amended sections of the Act will be outlined herewith, giving the new ruling in black type.

In sending out the amendments, Collectors of Customs and Excise have been advised to use reasonable discretion in the enforcement of the regulations so as not to cause undue annoyance or irritation to importers.

The first amendment is to Section 13 which formerly provided that the name of a city, province, state, department or other division of a country of origin was not in compliance with the Act, that the words, "Made in....." were to be used, followed with the name of the country. This section has been cancelled and the substituted section reads:—

"The name of a manufacturer or his trade-mark accompanied by the name of the country or a place in a province, state or other division of a country where the goods have been manufactured or produced will be accepted as sufficient indication of country of origin."

Further exemptions are added to section 10, which provided that where articles themselves are incapable of being marked without injury and are imported in bands, wrappers or containers, or on cores or spools, such bands, wrappers, containers, cores or spools shall be marked to indicate country of origin. To this section have now been amended the words:

"Unless such articles are of a class or kind not made or produced in Canada in which case no marking is required."

Section 11 dealing with imported containers or wrappers intended to be filled with or used upon domestic products is cancelled and the following substituted:

"Imported containers, labels or wrappers intended to be filled with or used upon domestic products are to be marked as required by the act, but in order to avoid the possibility of origin other than Canadian being imputed to domestic products sold in such imported containers, labels or wrappers because of the marking of the latter, the words 'container' 'label' or 'wrapper,' together with the indication of the country of origin required by the regulations, shall be used. It will not constitute a non-compliance with the Act, however, so as to involve the levying of the additional duty, if the words, 'container,' 'label,' or 'wrapper,' as provided in the preceding paragraph, be not used in the marking of the goods imported, but before the release from Customs this additional marking will require to be done. Provided that the containers imported to contain Canadian Produce and exported may be admitted without being marked with the country of origin, conditional on the importer certifying on the face of entry for consumption that such containers are for use in the preparation of goods for exportation."

Section 18 of the regulations specified metallic goods not intended for sale to the consumer in the condition imported, crude rubber, crude clay, hides and skins, raw furs, corkwood unmanufactured, marble and stone in the rough, broom corn and bristles, fibre, rags, partly manufactured materials, completely manufactured parts for incorporation into articles of Canadian manufacture, repair parts, etc. as not being required to be marked. This has been amended to read as follows:—

"The following goods will not be required to be marked with the indication of country of origin: Goods in a crude, raw or rough state, or goods which are not intended for sale to the consumer in the condition imported, but which are merely for use in the manufacture, construction or repair of articles in Canada. This does not apply, however, to goods elsewhere specifically provided for in these regulations. Provided that on every entry at Customs of goods as described in this section a statement shall be placed by the importer certifying to facts sufficient to classify the importation within the provisions of this section."

Section 12 providing that name of country of origin must be in English or French is cancelled.

Section 17, subsections c and e, dealing with the marking of watch movements are both cancelled.

"The statute requires that the country of origin be indicated in the marking. Hence the words 'made', 'produced' or 'grown' may be used in the marking to suit circumstances."

Marking Act Changes in Brief

Name of manufacturer and address now sufficient instead of "Made in ———."

Where articles themselves cannot be marked without injury to the wrapper, container, etc., they must be marked only where similar goods are made in Canada—if not also made in Canada, imports don't need marking.

Containers imported to be filled with Canadian produce for export don't need mark of country on label but importer must certify.

All goods in crude, raw or rough state exempted unless specifically mentioned, where formerly only metallic goods, crude rubber, clay, hides, skins, raw furs, corkwood, marble, stone in rough, broom corn and bristles, fibre, rags were exempted.

Partly manufactured goods still exempt.

English or French of name marked on goods cancelled. Can now be any mark indicating country of origin.

Watch movement regulation cancelled re specifically marking "Made in ———" and parts don't need separate marking.

CITY WILL INSTALL SANITARY DEVICES ON INSTALLMENT PLAN

Peterboro.—At the recommendation of the Board of Health the city will install sanitary arrangements and a sink in several houses whose owners, the Board said, were not financially able to undertake the work, but could meet the cost by annual payments over a period of years.

The suggestion of the Board that the city levy the cost of installing at an interest rate of 6 per cent. in equal annual payments, not to exceed five years, in the same manner as municipal taxes, through the tax collector, was adopted.

At the meeting of the Property Committee of the City Council the recommendation was adopted and the plumbing inspector instructed to prepare plans and specifications for the work.

STRATFORD WATERWORKS APPROVED

Stratford—The City Council, at its final meeting, cleaned up a variety of last minute business including a by-law totalling $75,000 for improvements to waterworks.

Plumbers Need Confidence Of Public

Increasing Tendency to Unjustly Class Plumbing and Heating Contractors as "Robbers" Must Be Offset by Giving Public More Insight Into Operation of Contracting Business

ON A GREAT many occasions recently there have been appearing in daily newspapers the usual unjustified complaints concerning the plumbing and heating contractor's charges. It is possible that this industry has been singled out as a fitting subject for complaint, in these days of economy, because of the lack of information concerning it. Anyone acquainted with the expenses of a modern plumbing and heating shop and the equipment used, would hesitate before classing contractors as "robbers," so it therefore behooves those engaged in this industry to give as wide publicity as possible to the costs of this business which form the basis of the charges made for various work. The following information compiled by the National Trade Extension Bureau of the U. S. is designed to meet this difficulty and the plan might be adopted to advantage by contractors.

Under the heading, "Is Your Plumber a Robber?" the bureau has prepared an advertisement which contractors can, with little expense, by pooling their interests, run in their local newspapers to the advantage of all concerned. This advertisement will educate the public to understand the meaning of that mysterious word, "Overhead."

The public generally is under the impression that plumbing and heating dealers are soulless profiteers; that they charge excessive prices for labor; that they make enormous profits. We know this is not true, but the buying public will not know it until it is educated to know. If nothing is done to give the public the truth, people will go on believing the old hoary-headed jokes about the rich and robbing plumbers.

It is a business fact, that before a profit can be made on any transaction, it must provide for and pay the overhead cost of doing business. Therefore, the advertisement gives in the following detail the average fixed charge, or operating cost, for one year in a shop doing a volume of business of $25,000:

Misc. Office Expense (Sundries)	$ 25
Local License Fee	5
Telephone and Telegraph	125
Light, Heat, Power and Water	60
Stationery, Printing and Postage	85
Trade Papers, Business Magazines	5
Traveling Expense (Conventions, Soliciting, Buying)	125
Office Salaries (Owner)	1,800
Bookkeeper, Typist, etc.	1,400
Auto Expense (Supt. and Owner's Business Cars)	400
Truck or Wagon Expense (Including driver, where charges are made for such service per trip)	406
Depreciation of Wagons, Autos and Trucks	200
Insurance (On Horses or Truck, where charges are made for such services per trip)	15
Advertising and Donations	325
Dues (Associated Plumbers and Steam Fitters)	50
Dues (Chamber of Commerce or other Civic Body)	25
Interest on Owner's Capital	155
Interest on Borrowed Money	105
Legal Expense	15
Taxes (City, State and County)	70
Miscellaneous Store Expense	12
Allowances and Bad Accounts	125
Non-Productive Labor (Labor not chargeable)	25
Fire Insurance	19
Liability Insurance	184
Business Insurance	125
Rent (Shop and Warehouse, Garage and Yard)	600
Depreciation (Stock, Equipment and Buildings)	100
Damaged Material	12
Tools (Repairs and Depreciation)	50
Workman's Compensation Insurance (Based on Journeyman at $9.00 per day)	122
Miscellaneous Shop Expense	13
Total of Fixed Charge or Operating Cost	$ 6,783

Statement of Distribution of $25,000 Year's Volume.

Cost of Labor and Material	$15,944
Overhead (Fixed Charge or Operating Cost)	6,783
Total Cost of Doing Business	$22,727
Net Profit	2,273
Total	$25,000

As to the oft-repeated statement that plumbing and heating dealers charge excessive prices for labor, the Bureau suggests that the advertisement carry the following figures. The blank spaces should be filled in with the exact rate of wages paid in the town where the advertisement is used:

The average wage rate paid to journeymen plumbers during the last year has been ?..... per hour.

The ruling rate for resale to the customer for this labor service has been ?..... per hour.

Under present business conditions, the Plumbing and Heating Dealer actually loses money on this $..... labor when he resells it at $..... per hour, unless material in quantity is sold along with the labor, because of the fact that overhead cost of doing business must be provided for.

This is clearly proved by the following simple example, based upon the business facts and figures for a shop doing a volume of $25,000 worth of business per year with an overhead of $6,783.

Example.

Assume that the first six months of the year is gone, and that no work requiring material remains to be done:

There still remains to be provided for one-half of the year's overhead or $3,390.

This overhead is a fixed charge, and under the conditions as stated must be paid out of the proceeds of labor only:

A shop doing no more than $25,000 annual volume of business could not possibly work more than an average of three journeymen:

There remains of the year only 150 working days of eight hours each, or 1,200 hours:

Three men working 1,200 hours is 3,600 hours of wages. 3,600 hours, at $..... per hour, cost $..... for wages alone. $..... wages, plus $3,390 overhead, equals $.....

Dividing $..... by 3,600 hours, it is found that each of these hours of labor service must be resold for $..... before actual cost of doing business is covered.

$..... per hour, for labor service alone, loses for the Plumbing and Heating Dealer ..... cents on every hour sold, unless material is also sold in quantity to take up this heavy overhead.

According to the foregoing figures it will be seen that the proprietor, after allowing himself a salary less than the amount he pays his journeymen, has a net profit on a total year's business of $2,273, or only a net 10 per cent. on the actual cost of his service.

Any man who knows anything about business knows that a net profit of 10 per cent. is not profiteering. In fact, 10 per cent. on a volume of business aggregating $25,000 is a very modest profit.

Self-Corrosion of Cast Iron Pipes

Discussion on Disintegration of Concrete in Alkali Soils Brings Out Result of Extensive Experiments Made With a View to Obtaining More Definite Information on Destruction of Cast Iron Water Mains, Particularly in Western Provinces

Reproduced in Sanitary Engineer by courtesy of W. Nelson Smith, M.E.I.C., Consulting Electrical Engineer Winnipeg Electric Railway Co.

(Continued from last issue)

This single instance of the observed difference in the moisture of soils on gas pipes and water pipes respectively, confirms a statement made to the writer by the Manager of the Gas Department of the Winnipeg Electric Railway Company that soil around gas pipes is generally dryer than around water pipes, this being presumably due to the generally average higher temperature of illuminating gas, above the average temperature of city water. This single discovery above reported may need further confirmation, but it certainly points to the probability, that the reason why the gas pipes in the City of Winnipeg have so far not been damaged by corrosion to any extent in comparison with water pipes, is because of less moisture in the soil immediately surrounding the gas pipes. Both sets of pipes are about the same age, and the joints are made in the same way, with lead, and both are equally exposed to stray current.

Complete Soil Analyses

It was deemed desirable to have complete analyses made af a number of typical soil samples collected from representative areas in the Winnipeg district. The water soluble content was first determined and later the total analysis, on the basis of the hydrochloric acid soluble constituents as recommended by the Bureau of Soils at Washington and the Dominion Department of Agriculture at Ottawa.

It was noted that 5 samples showed from nearly 1% to 1 1-3% of water soluble salts out of the total weight of the soil. At the places where 5 samples were taken corrosion of water pipes had been particularly severe, with the exception of the Jubilee and Pembina sample which was discovered by accident and analyzed because of the very large crystal aggregates discovered, which are of calcium and magnesium sulphate.

Electric Battery Effect of a Cel' Consisting of Two Cast Iron Electrodes In Contact With Two Different Soils

Two cells were so constructed as to provide two pieces of cast iron not in contact with each other, but both in contact with moist soils, the anode being in contact with limy silt and the cathode in contact with a clay soil, both soils being kept moist. One of these cells had an initial e.m.f. of 2.1 millivolts and the other 9.2 millivolts, which latter became 7.6 millivolts when filled with distilled water. Within the first three hours No. 1 rose 10 millivolts and No. 2 rose 40 millivolts. In about 3 days No. 1 had reached 14 millivolts, and No. 2, 63 millivots, which were reduced respectively to 12 and to 48 millivolts after adding more water. The voltages varied for two months, alternately rising and falling. At the end of about two months, the cells having stood an open circuit, and without any addition of water, the polarity showed a reversal in both cells. Upon adding water once more, No. 1 recovered its original polarity and voltage, but No. 2 increased its negative polarity to 64 millivolts negative, while No. 1 went as high as 66 millivolts positive.

These results show that soils of Winnipeg and vicinity when in contact with iron, can of themselves set up an appreciable e.m.f. like that of a primary battery, amply sufficient to decompose the iron.

In Connection With The Corrosion of The Cast Iron Water Mains at Selkirk and Transcona

The soil around the pipe was a limy clay silt, and though it was not as heavily charged with soluble salts as the Winnipeg soils, crystals of calcium sulphate were found in the soil adjacent to the pipe. There were many limestone pebbles in the soil, more or less decomposed.

The tarry covering of the pipe was peeling off and gave no protection. The corrosion was widespread, but more pronounced on the flanges of the bells which, in one instance, could be whittled of ¼ inch on the edge of the flange. The softening was in patches. At one spot where a limestone pebble was in contact with the pipe the deepest pitting was observed, the pipe being softened about ¼ in. deep. The soft areas on the pipe were marked by patches of rust, on removing which, the iron could be dug into with a knife blade. The pipe had been in the ground about 8 years. It is located about 1¼ miles west of the northern extremity of the trolley line that runs to Winnipeg, the nearest sub-station being about 5¼ miles south of Selkirk. The town water works of Selkirk are not connected to the Hospital water pipe system, being fully ½ mile distant. The Hospital water main is in the form of a closed rectangular loop encircling the main building, and this corrosion was observed on that part of the loop that was furthest from the electric railway. As the corrosion was general over the 100 feet or so of pipe that was uncovered, a stray current must have been flowing into and out of the pipe at the same place, at the same time, and from the same source 1¼ miles distant through the earth, in order to be held responsible for this corrosion. Such gymnastics on the part of electric currents have not to our knowledge been proved to be theoretically possible by any of the authorities on electricity.

A delicate galvanometer has failed to show any trace of stray current.

Besides the corrosion at Selkirk, we also found well advanced corrosion on a 12-inch water main at the C. P. R. yard at North Transcona, 2¾ miles in an air line from the nearest electric railway track.

Corrosion was also found on a pipe at the stock yards in St. Boniface, half a mile outside the area of electric railway operations.

The products of corrosion are quite similar to those found in the pits in the Winnipeg mains and the flanges of the bells were attacked in the same manner as in Winnipeg and as in other localities, even in Europe, from which reports have been received of similar corrosion that was attributed to soil action in the absence of even a suspicion of stray current.

Soil Action on Lead and Copper

Lead and copper are also affected by self-corrosion in these same soils, but our researches have not continued long enough to submit much information. A lead water service pipe in the Selkirk Mental Hospital grounds was found to be corroded and the evidence of decayed manure in the original backfilling of the pipe trench led us to suspect that nitrates may have hastened corrosion, the other soil salts being much the same as in the case of the corroded cast iron pipe.

To briefly review one experiment, a small new lead plate was buried in contact with a clay soil and some black surface soil in a sealed glass container, with plenty of moisture present, and when removed at the end of 4½ months was found to be pitted with little cavities about as big as pin heads, which were filled with white pellets of crystallized lead sulphate. No heat was applied during the experiment.

A copper ground plate buried below the basement floor of the Manitoba Government Telephone Exchange in St.

Boniface corroded in 18 months or less after installation. We were given to understand by the telephone people that it would not be possible for any stray current to be leaking out into the earth from the telephone system through this ground plate.We subsequently immersed some thin sheets of copper in neutral solutions of the alkaline salts, above chemical attack within 24 hours, by the formation of insoluble greenish compounds of copper.

Corroboration From Other Places

The United States Bureau of Standards has done some work on the self-corrosion of iron in soils, and published the results, but the publicity was limited and is now out of print. It has been so heavily over-shadowed by the studies of the Bureau in stray current electrolysis and its mitigation, that most experts are still considering soil corrosion more in the light of an occasional accident, than as a natural condition that could prevail over a wide region.

In St. Paul and Minneapolis, considerable soil corrosion has been found. It was reported by Mr. E. H. Scofield, Power Engineer of the Twin City Rapid Transit Company in 1914. The sulphate bearing soils are not common in that locality, but there are frequent peat formations where the soil is acid and other areas carry a high content of nitrate and magnesium chloride. The acid soils pit the iron clean through. Where limy clay is found the pitting is graphitic, as in Winnipeg. There is less corrosion in the sandy soils of St. Paul than in the peat and clay of Minneapolis.

Mr Scofield has a piece of 4 inch cast iron water main that was in the ground at Pierre, South Dakota, from 1891 to 1911, which was corroded through with spongy graphite pitting, although there never was an electric railway in that town. The corroded material on analysis was found to be of the same character as that taken from the Winnipeg mains, even to the sulphide. In the course of the Minneapolis investigation a potential difference as high as 400 millivolts was found between metal electrodes buried in two different soils in the same cell.

At Brandon, Manitoba, a 6 inch cast iron water pipe was corroded through near the C. P. R. station before the electric railway was ever built.

Mr. A. S. Dawson, M.E.I.C., of Calgary, has reported the failure of steel reinforcement in a concrete pipe in a locality where no stray current was possible

Mr. P. D. Mellon, of Calgary, has reported the corrosion of steel pipe and malleable iron fittings in moist alkaline soil at Claresholm, Alberta, 50 miles from Lethbridge and 75 miles from Calgary, in a natural gas pipe line connecting these two cities, which have the nearest electric railways to the point of corrosion.

Mr. R. A. Brown, General Superintendent of the electric Railway and Lighting System in Calgary, has reported that cases of pipe corrosion happened in that city before the electric railway was started.

Mr. Brunlees, Superintendent of the Municipal Electric Railway in Edmonton, has recently reported the corrosion of pipes in alkaline soil in that city, in areas that could not have been affected by stray railway current.

A steel pipe line at Rochester, New York, some 28 miles long, suffered severely from self-corrosion where it lay in wet clay soils or in swamp water. This case has been reported upon most exhaustively and is doubtless familiar to most engineers in charge of large water systems. A report upon it by Mr. John F. Skinner, Principal Assistant Engineer of the City of Rochester contains, as Appendix "A," a most remarkable paper on the electro-chemical corrosion of the steel conduit, by Mr. Richard H. Gaines, Chemist of the Board of Water Supply of New York City. This report was read as a paper to the American Electro-Chemical Society in 1908, and contains the best presentation of the soil corrosion of iron and steel, for the benefit of engineers who are not electro-chemists, that could possibly be desired, and it should be carefully read by every engineer who is responsible for the construction or maintenance of iron or steel pipes in a wet clay soil containing soluble salts.

The more rapid corrosion of steel, than of either cast or wrought iron, is attributed by some authorities to the presence of manganese which has a higher solution pressure than iron, and probably dissolves first.

At Portland, Oregon a similar steel conduit, where laid in wet clay was badly corroded, but where it lay in the sand bottom of a river, it remained in good condition.

(Continued on page 24)

Seven Points in Showroom Question

DEALING further with the controversy which has been carried on in recent issues of Sanitary Engineer as result of the suggestion made by a wholesaler to confine showrooms to plumbing wholesalers, a letter comes from a plumber in an Ontario town as follows:—

"If I understand your article, the wholesaler wants to have everything his own way and have our customers here in the country go to the city and buy plumbing supplies and have them shipped here. Then all the plumber gets out of it is wages and still he has his overhead expenses on his premises to pay just the same. From what I can see the supply house wants to make over double the profit and the plumber gets nothing, for there is too much of what is going on now for our own good."

(Signed) Trying to get along.

Discussing the subject with Sanitary Engineer, a Toronto master plumber outlines seven points which, he claims, form the basis of this question. On these points the question should be decided, according to his opinion. These seven points are as follows:

First—Is the percentage of cost of the present wholesale showroom in ratio to the volume of sales from that showroom a lesser one than the percentage ratio in the case of the showroom of the individual plumbing operator?

Second—Is sight not considered as the most important of the five senses in selling and therefore would not one hundred small showrooms both spread and enlarge the volume of business over five larger showrooms or as the article can be understood to mean, one gigantic showroom?

Third—By what manner or means would the smaller towns be able to make use of this one showroom idea, which because of its size would only be located in the larger cities or largest city?

Fourth—Granted that smaller communities had to visit these large centres to view plumbing fixtures, would we not be throwing the gate wide open for departmental and mail order competition?

Fifth—Name some other lines of endeavor or merchandising wherein the central, eggs in one basket, idea, has proven better for the general elevation of the industry and the volume of sales than the sales of the product through a great number of displays or sales forces.

Sixth—As all plumbing work is done under a code of laws in this province it must be admitted that the ultimate man in the evolution of plumbing into the hands of the public must be the plumber. How can you justify his good intentions to give service on a product on which he has no monetary connections?

Seventh—How in future will the supply interests recognize future claims of the plumbers for consequential damages?

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Outlook for 1922

THE end of the year is inventory time when every thoughtful business man makes a summary of what he has done in the year which has just passed. As we enter upon the year 1922, a vast field of potential business in plumbing and heating lines becomes apparent, and much actual trade will be available for the operator who makes his plans to use every influence at his command during the year for the development of every possible dollar's worth of business.

Prospects for considerable building are brighter now than they were a year ago. The past year has been one of liquidation in all lines of business. During 1921 plumbing goods have declined in price approximately 30% and yet some manufacturers report business for that year only about 70 to 80% of the volume done in 1920. Building stagnation has been with us for some years and the figures quoted therefore must indicate that aggressiveness on the part of operators combined with easier financial conditions in 1920 were the factors responsible for bigger business in 1920 than in the year just passed. With this in view it also becomes plain that more aggressiveness on the part of those engaged in all branches of the industry will result in more replacement business in 1922 irrespective of whether or not the expected building boom materializes. There are valuable opportunities at hand to develop business and there is no reason why business should be slack. The situation is largely what those engaged in the industry, make it. By this is meant not only the master and journeymen operators, but wholesalers, manufacturers, salesmen, etc. Every one must do his part, and it should be a general New Year's resolution to bend every effort to the popularizing of adequate plumbing and heating equipment in all buildings.

Prospects For Building

ACTION OF THE Builders' Exchange of Toronto in securing an agreement with the building trades for a reduction of ten cents an hour should be followed by similar action on the part of the building trades throughout Canada in order that building activity may be stimulated. It would appear as though the prediction of the manufacturers and supply firms made at the meeting in Toronto in the early Fall is coming true and that the workmen would sooner or later be forced by the need of work to play their part in lowering costs to stimulate building. Though there has recently been some increase in prices of certain building materials, in most cases revisions have been downward and this combined with lower wages should help revive activity.

One firm which supplies steel for building construction work advised Sanitary Engineer this week that bookings for Spring trade are much ahead of last year and that considerable building construction is expected to commence early next year. Similar optimistic reports are forthcoming in connection with anticipated house construction and a considerable reopening of business in building circles should be possible early next year.

The Marking Act

ONE OF THE last acts of the Meighen Administration has been the amending of the "Marking Act" which in its original form has been causing endless anxiety on the part of foreign manufacturers whose goods are marketed in Canada. The incoming government would probably have taken some steps to adjust this legislation but the action on the part of the old Government, belated as it is, is none the less welcome.

The Act as amended will be found elsewhere in this issue. It is evident from a reading of these comments that the Act as it now stands is much more acceptable to the trade than was the original form. Many lines of sanitary goods, which now bear the manufacturer's name and address, will not need to be changed as was the requirement of the former Act calling for the words, "Made in——" to be placed on each article. The latter requirement is still made by the Act in force in the United States.

If, as is claimed, the regulation governing marking of imports is to give more protection to domestic products, it is difficult to see why the law was not more particularly applied. Taking tools for instance, the Canadian manufacturer produces only about one-third of the range of tools required by the average mechanic, yet full protection on the whole range is given, to the detriment of young mechanics requiring these tools.

Had the original provision calling for the words "Made in ——" been upheld in the Canadian Act, large quantities of various lines of plumbing fixtures, made up for this market would have either been sent elsewhere or attempt made to re-stamp them, with great danger to their quality as even a slight blur is enough to class them as "seconds."

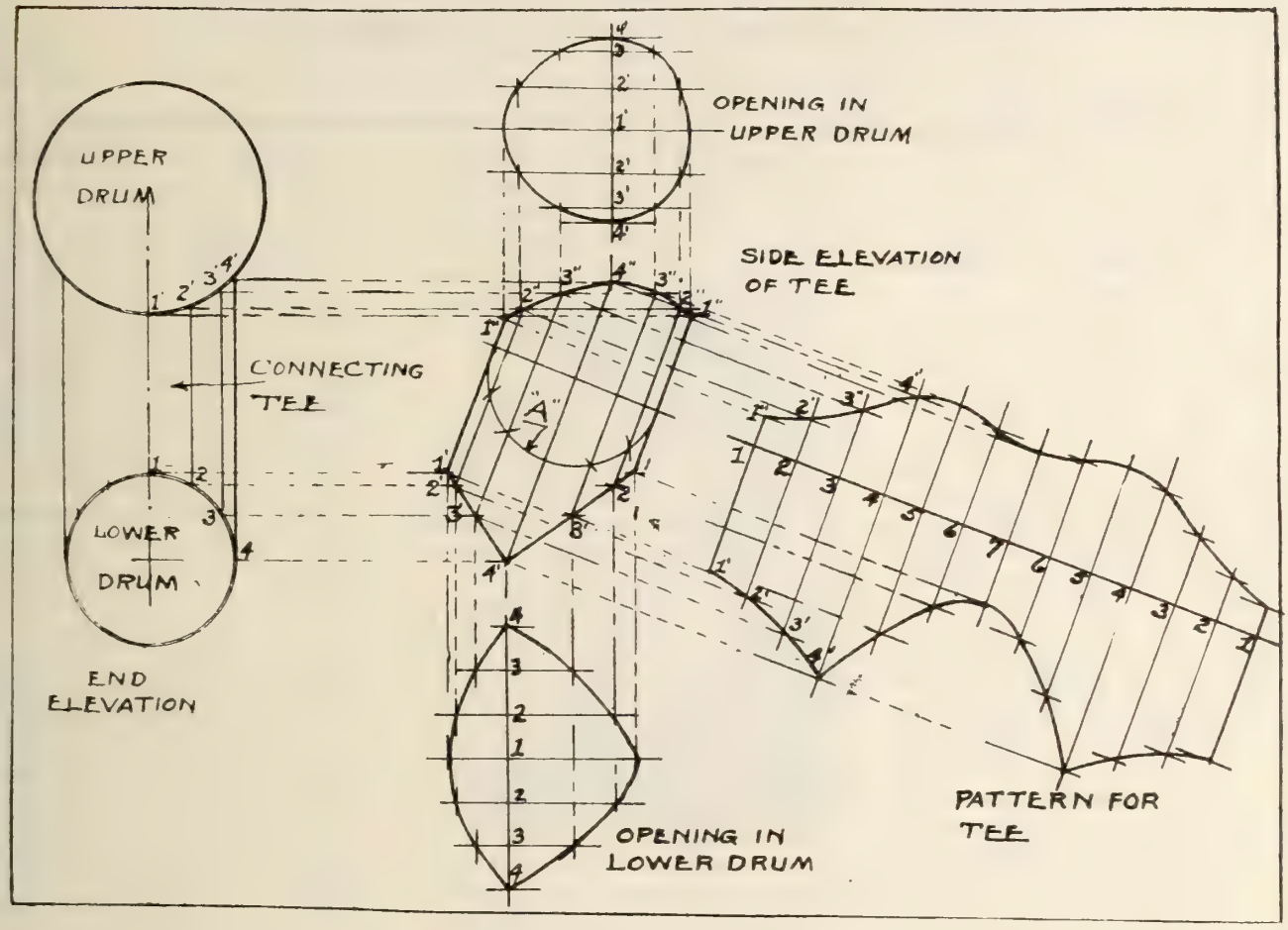
It is doubtful if the Act as amended will have the required effect in plainly indicating on certain goods the country of origin, when some sentiment is known to exist against such goods. It would be simple for one European manufacturer to make goods without a mark on them and then ship them to another country where an agent might place his name on the goods. In such case the true country of origin would not be indicated. This could not happen on goods coming through the U.S. because the Act of that country makes it necessary to mark the country in which the goods are made, but it might be done on goods shipped to Canada direct from other countries except the U. S.

When put into practice some minor questions such as these will undoubtedly crop up for solution, but it is to be hoped now that collectors have been allowed to use some discretion that many of the trivial points which are often raised by union officials who wish to be authoritative will be eliminated, and everyone co-operate to have the Act administered with as little difficulty as possible.

THE value of the price argument has been enhanced throughout the period of liquidation. The ratio of decline in the cost of sanitary fixtures and materials is contained elsewhere in this issue, but one of the most potent comparisons available to the merchant is found in the prevailing transportation rates and also the cost of living levels. Plumbing and steamfitting supplies have registered substantial reductions during the past twelve months.

Tees for Heavy Smoke-Pipe Work

By O. W. KOTHE, Principal St. Louis Technical Institute, St. Louis, Mo.



IN heavy smokepipe work, tees are often made as shown in this drawing to connect different drums. In this case the upper drum is of a larger diameter, while the lower drum is of a smaller diameter and corresponds with the diameter tee.

In the side elevation we see this tee is placed on an incline, so that developed miters must be projected.

First draw the end elevation describing the upper drum from the center line and also describe the lower drum. Divide a quarter circle of the lower drum in equal parts and erect a line until they intersect the upper drum as in points 1'-2'-3'-4'.

Now from each of these intersections in both drums, extend lines to the right in a convenient distance. Then draw the slant line of connecting tee 4'-4' and describe the section "A" square with this line. Divide it in equal parts and then from each point in this section project lines parallel with the miter line 4'-4".

Where these lines from "A" intersect those horizontal lines from the upper drum and the lower drum, we sketch a miter line through those intersections.

This enables us to trace the upper miter line as 1"-2"-3"-4", etc., and the lower miter line as 1'-2'-3', etc. This completes the working drawing and enables us to set out the pattern.

To set out the pattern for the tee, draw a line at right angles to the side elevation as 1-1 and on this line set off the girth from section "A."

Draw stretchout lines through each of these points and then from each intersection in the top and lower miter line, square out points until they intersect lines in stretchout of corresponding number. Trace a line through these intersections and you have the pattern for the tee.

To set out the pattern for the lower opening in drum, we pick the spaces as 1-2-3-4 from the lower drum and set it off as 4-4. Then we develop it by the lines shown.

For the upper drum we pick the spaces as 1'-2'-3'-4' of end elevation, and set them as 4'-4' above side elevation. Then by projecting lines as shown the intersections for the outline are developed and the curb can be traced as shown.

When these tees are made out of 10 or 12 gauge iron, it is best to treat the working drawing on the neutral line. This neutral line represents the center of the sheet of steel. As number 10 gauge is an ⅛ inch thick and if the connecting tee was to be 12 inches in diameter on the inside, then you would have to make your working drawing 12-⅛ inch in diameter. This is the only way you can account for the thickness in such work. Flanges must be allowed extra on the pattern for tee if the connecting tee is to be riveted, but if the tee is to be welded, then the raw edge as here shown is all that is needed.

NICKEL CO. EXECUTIVE RESIGNS

The announcement is made of the resignation of executives of the International Nickel Company of Canada, namely, A. D. Miles, president, G. E. Sylvester, assistant to the president, and W. M. Bennett, treasurer. The resignations have not been accepted as yet, and until the board of the parent company in New York meets the local organization will be managed from the New York office. While the demoralized condition of the nickel market and the clouded prospects created by disarmament proposals are given as reasons for present complications it is suggested that possibly other reasons will be discovered in due course. The Sudbury plant was closed down several months ago.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

FIRE LOSS

Montreal.—W. H. Williams, plumber, suffered fire loss.

WINDSOR PLUMBERS IN BASEBALL LEAGUE

Windsor, Ont.—The plumbers and steamfitters of Windsor will have a team in the indoor baseball league this season.

NEW WATER SUPPLY FOR DEVON TOWN

Fredericton, N. B.—The town of Devon this week used Heron Lake water from the town mains for the first time. Gale Bros., of St. John, contractors on the water extension, completed their work recently, and last week the new water supply was piped into the town. It was in the pipes for several days before being admitted to the reservoir and from them into the distribution system.

CLAY PRODUCTS ASSOCIATION WILL CONVENE IN TORONTO ON FEBRUARY 7-9, 1922

The annual convention of the Canadian National Clay Products Association will be held at the Prince George Hotel, Toronto, on February 7, 8 and 9, 1922. Arrangements have been made for the following papers: Field Tile in Canadian Agriculture by F. L. Ferguson of the Ontario Agricultural College, Guelph; Making and Marketing Drain Tile, by H. H. Hallatt of the Tilbury Brick and Tile Co., Tilbury; National Importance of the Clay Products Industries, by A. G. Dalzell, consulting engineer of the Vitrified Clay Pipe Publicity Bureau, Toronto; Industrial Safety, by R. B. Morley, secretary of the Industrial Accident Prevention Association, Toronto; Tunnel Kilns, by George Booth, of the Booth Brick & Lumber Co, Islington, Ont.; Handling Clay with Conveyors, by William Burgess of the Don Valley Brick Works, Todmorden, Ont.; Coal for Kiln Burning, by E. C. Hanson, consulting engineer, Toronto. The International Business Machines Co., Toronto, will give a paper on time and cost recording and a demonstration of the Hollerith tabulating and sorting machines operated by electricity. It is expected that Theodore Randall, secretary of the National Brick Manufacturers' Association and vice-president of the same association will be present. The annual banquet will be held February 8.

The president of the C.N.C.P.A. is Ryland H. New of the Hamilton and Toronto Sewer Pipe Co., Hamilton. The secretary is G. C. Keith, 51 Wellington St. West, Toronto.

WESTERN ONTARIO NEWS

James Gerard of Essex, Ont., wants prices on plumbing, hot air heating and electrical work for new $4,000 residence.

The Hunt Plumbing Co. of London, Ont. was awarded plumbing and heating contract for new stores being erected by R. H. Smith.

The Union Natural Gas Co. of Chatham, Ont., contemplates drilling additional wells in Dover and Tilbury Townships.

The ratepayers of Windsor, Ont., will vote on a by-law at the January elections to provide $23,000 for a new comfort station.

R. D. Purdy, 31 Langarth St., London, Ont. wants prices on hot air heating, plumbing and electrical work for new $3,600 residence.

G. R. Blanchard, 489 English St., London, Ont., wants prices on hot air heating, plumbing and electrical work in connection with new $4,500 residence.

The council at Amherstburg, Ont. wants prices on water mains and fire hydrants to be placed for protection of the new high school. Mayor Park is chairman of the committee.

The Wright Teale Co. of London, Ont., was awarded the contract for putting in ten new bath rooms and hot and cold water in the upper story of the Hotel Belvidere.

W. J. McGuire was awarded the heating, plumbing and ventilating contracts at $44,500 in connection with the new county jail to be erected at Sandwich, Ont.

The engagement is announced of Miss Edna Helena Partridge, eldest daughter of Mr. and Mrs. Thomas L. Partridge, London, Ont., to Frederick S. Barkley, of Leamington, Ont. formerly of London. The wedding will take place in January.

Architect W. G. Murray, Dominion Bank Building, London, wants prices immediately on hot air heating, plumbing and electrical work in connection with fitting up of apartments and offices for R. E. Butler of Woodstock, Ont. Estimated outlay $12,000.

City Engineer Harry Brazier, London, Ont. will call for tenders shortly for approximately 200 tons of iron castings for manhole covers and gulley grates and for all sizes of sewer pipe from 6 inch to 27 inch in connection with new sewers costing $400,000 to be laid in 1922.

The Wright Teale Co., of London, Ont. was awarded contract for installation of new plumbing in the Knollwood Presbyterian church.

Jack Williams was awarded the heating contract and Williams and Roberts the plumbing for new $4,500 residence for F. C. Kilbourne at London, Ont.

L. E. Carrothers, Board of Education architect, at London, Ont., has been instructed to prepare plans for a new eight room public school. Steam heating system will be installed.

The Utilities Commissioners, London, Ont., E. V. Buchanan, general manager, will want prices shortly on 4 and 6 inch water mains for extensions that are contemplated.

INCORPORATION

Beeby Range Co., Ltd., has been incorporated in Canada with capital of $500,000 and head office in Brockville, Ont., to manufacture and deal in stoves, furnaces and all kinds of heating apparatus. The incorporators are headed by J. H. Beeby, stove manufacturer.

STOCKS ARE FAIRLY LOW

Stock taking, plumbers state, will find them with the lowest stocks they have ever carried in many lines. Wholesalers are looking for considerable replacement buying. Operators are unanimously of the opinion that the outlook for business in 1922 is good.

BIG WATERWORKS EXTENSION FOR KITCHENER

Kitchener, Ont.—The Kitchener Water Commission has received from the Ontario Railway Board the latter's permission to proceed with the large capital expenditures planned upon extension and improvement of the local water system.

Some weeks ago, the provincial board of health endorsed the scheme. It will involve an expenditure of at least $185,000 and when completed will give Kitchener a water supply for industrial, domestic and fire protection purposes that will be ample for many years to come. One of the first things to be undertaken will be the construction of a conduit line connecting all mains with the Strange street section and linking up the eight producing wells, having a daily flow of one million five hundred thousand gallons.

A pump house will be erected on the Strange street property to house the new pumping machinery to be purchased and installed at a cost of some $60,000. A million gallon reservoir will be constructed, thus doubling the reserve supply of water.

NEW WATERWORKS DAM STANDS TEST

St. Thomas, Ont.—The new dam of the waterworks department in this city, storing 18,000,000 gallons of water in Kettle Creek one mile above the city, stood its first real test since its construction with flying colors, when the creek became a raging torrent as the result of the rain which fell almost steadily for 36 hours.

DELAY IN SHIPMENT HOLDS BACK FILTER PLANT

Peterboro—Owing to a delay in the delivery of material it is not likely that the city's filteration plant will be ready for operation before January 15. Waterworks Superintendent R. E. Dobbin announced that there has been an unexpected delay in shipment of some of the machinery and equipment, and, because of this delay, the contractors have taken now a month more than their contract time. The plant was to have been in operation by December 1.

WILL LAY SEWERS IN WINTER

Montreal—According to a report which the Director of Public Works has submitted to the Executive Committee at the City Hall, funds have already been voted for new water mains, which may be laid this winter at an estimated outlay of $170,000. In the same report the administrators of the city are informed that sewers also might be laid in twenty street sections, at the expense of interested proprietors, for the estimated amount of $455,000.

The Director of Public Works declared that in conformity with instructions regarding work on sewers, subways, and other public improvements which might be executed by his department during the course of the winter, he had transmitted a list of such improvements which would cost about 15 per cent. more than if done during the summer season.

INCREASED COST OF SEWERS

The enormous increase in the cost of improvements is shown in the different estimates made upon the construction of a sewer in a Toronto street. Notices sent out in February, 1917, estimated the cost of the work at $210,890. In March of this year another estimate was sent out on the same work, in which the total cost was placed at $55,200, an increase of about 175 per cent.

The Works Department in explanation state that, in 1917 the estimated cost of material for the job was $3,000 and in 1921 it was $14,000. The cost of destroying the pavement on the street and relaying it in 1917 was estimated at $6,000, as against $10,000 this year. Labor was paid 33 1-3 cents per hour in 1917 and now receives 60 cents per hour. In addition to this, the overhead expenses in connection with the job have increased 15 per cent. since 1917. The Works Department figures its overhead expenses, without allowance for any unforeseen circumstances, to be 28.6 per cent.

JAMES SMART PLANT APPOINT TORONTO REPRESENTATIVE

The James Smart plant of the Canada Foundries & Forgings, Limited, Brockville, have announced the appointment of Tim. W. Rogers as their representative for Toronto and Western Ontario. Mr. Rogers has had a wide and varied experience in the metal trades and previous to this appointment was associated with Drummond, McCall & Company, Limited. The Smart Plant proposes to open an office in the city of Toronto the first of the year.

T. W. ROGERS

Appointed representative for Toronto and Western Ontario for the James Smart plant, Canada Foundries and Forgings Ltd., Brockville, Ontario.

MEN TEMPORARILY BLINDED WHEN ALKALI BACK-FIRED

Alfred H. McCarnan, and George Bigley, are in St. Michael's Hospital, suffering from injuries to the eyes and head, sustained in an explosion of alkali they were using to clear a clogged pipe on the premises of the Huron and Erie Mortgage Corporation, 14-16 King Street East, Toronto, recently. The two men are temporarily blinded and suffering terribly.

McCarnan is a plumber employed by the F. R. Maxwell Company, Limited, and Bigley is caretake of the Huron and Erie Building. The alkali, a strong solution, backfired into their faces as they were bending over the pipe.

OSHAWA COUNCIL SHOWS CONFIDENCE

Oshawa, Ont.—The town council seems to feel that better times are ahead. It has decided to submit to the people on January 2 a by-law to spend $70,000 on the construction of a trunk sewer in the west end of the town. A few weeks ago the council refused to take any action in the matter because of the cost and the uncertainty of the times. If the by-law carries work on the sewer will commence immediately.

The west end sewer has been promised by nearly every Council for the last ten or twelve years, but for some reason or another nothing definite was ever done.

URGE SEWERAGE SYSTEM

The population of York Township, Ont., has increased from 44,300, in 1920 to 55,000, according to the annual report of the township Board of Health. Building has also been on the increase.

The report states that 3,181 building permits have been issued since Jan. 1, of which number 2,055 were for small cottages. The estimate on the total value of building was set at $8,000,000.

The report very strongly set forth the need of a drainage and sewerage system throughout the township. It stated that the introduction of a water system in the eastern part had greatly helped the situation. Plans suggested by the engineer for a sewerage system which would be independent of that of the city of Toronto were recommended to be again taken up.

Smiths Falls, Ont.

Sewer costing $18,000 is being constructed by Town by day labor. J. A. Lewis, Engr.

Catalogues and Booklets

SCOVILL'S "TUBE FACTS"

An interesting booklet recently issued by the Scovill Manufacturing Co., of Waterbury, Connecticut, U.S.A., supplies a quantity of distinguishing facts regarding brass tubing, and the book is rightly termed "Tube Facts."

The introduction points out that it is one thing to talk quality of goods, and another thing to prove it. Brass tubing, not containing any attributes of beauty such as color, texture, design or style, is therefore forced to rely upon what is under the surface to serve as vital points in structure, usefulness and quality. This probing is done with a microscope, and the difference between one tube and another can then be distinguished. The book has many illustrations of this nature depicting sections of tubing under various conditions. There are also a number of photographs of the Scovill works, showing mill interiors, methods of operation, and plant equipment. Some of the points touched upon are: the tube mill; the laboratory, applying metallagraphy to the manufacture of metal products; why condensor tubes fail; how seamless tubes are made; treatise on copper tubing, and other sections.

Meeting of Montreal Master Plumbers

H. Lavigueur Elected President—Association in Excellent Financial Position—Will Again Enter Builders' Curling Bonspiel

MONTREAL.—A highly satisfactory financial standing, and favorable progress in organization work during the past twelve months, were revealed at the annual meeting of the Montreal Master Plumbers' Association, held in the Builders Exchange, with D. A. Bethune presiding.

The secretary submitted the annual financial statement which showed a favorable balance of $70.78 on the year's current account, and on the capital account, assets amounting to $1163.68. John Watson, convenor of the audit committee congratulated the association on the good shape in which the finances

H. LAVIGUEUR

Master plumber, Montreal, who was elected to the presidency of the Montreal Master Plumbers' Association succeeding D. A. Bethune, at the annual meeting.

were, but urged that steps should be taken to arrange that a considerable amount now standing in the capital account be transferred to the year's current account. Upon the motion of Jas. Ballantyne, seconded by W. J. Barber, it was unanimously resolved that the statement be adopted.

Nominations

J. E. Walsh, for the nominating committee, proposed the following nominations for the respective offices of the Association in the ensuing year:

President—H. Lavigueur.

1st Vice-Pres.—Geo. Delaney.

2nd Vice-Pres.—Jos. A. Francoeur.

Past President and representative director to the Board of Builders' Exchange—D. A. Bethune.

Chairman of Hygiene Committee—A. Charette.

Chairman of Arbitration Committee—R J. McCauley.

Chairman of Legislation Committee—A. Noel.

Chairman of Apprenticeship Committee—P. C. Ogilvy.

Chairman of Price List Committee—W. U. Hughes

Audit Committee—Jno. A. Gordon, Jos. Belisle and O. Caron.

Trustees—J. E. Hardy, Jno. Colford and W. G. Borland.

Honorary Secretary—Jno. Watson.

Executive Secretary—David K. Trotter.

When moved by Jas. Buchanan, seconded by Jas. Griffin, it was unanimously resolved that above slate be the officers for 1922.

D. A. Bethune, on retiring from the chair, thanked the members for the support they had given him during his two terms of office, and hoped that an even greater measure of support would be given the new president, Mr. Lavigueur.

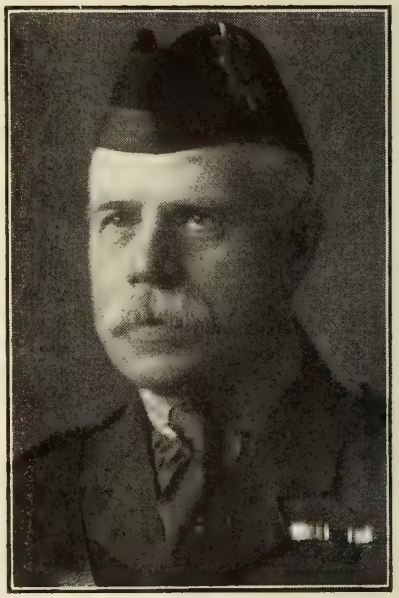
Honor Retiring President

Jas. Ballantyne, in proposing a vote of thanks to the retiring president and officers, recalled that during Mr. Bethune's terms of office, there had developed a strike among a number of their mechanics in a certain section, but by excellent organization work they had come through the difficulties. Through the wise generalship of president Bethune, and sturdy co-operation of the other officers, the members generally had been able to carry on their work with a minimum amount of dislocation to the trade and public.

H. Lavigueur, on taking the chair, thanked the members for the honor they had conferred upon him, and which had been entirely unsought by him. He was confident that during 1922 he would have the whole-hearted support of the Association.

To Enter Builders' Curling Bonspiel

The favorite pastime of the Montreal plumbers was not overlooked at the meeting. With the season now at hand, and a representative gathering present, the opportunity of laying plans for th season's curling was taken. The meeting agreed to leave all arrangements for the annual curling bonspiel in the hands of John Watson, while D. A. Bethune agreed to make all arrangements so that two rinks of plumbers at least should be entered in the Annual Builders' Curling Bonspiel.



D. A. BETHUNE

Who has retired from the presidency of the Montreal Master Plumbers' Association after two terms of office.

The executive secretary, D. K. Trotter, was presented with a bonus as a token of appreciation for his excellent services during the past year, to which he suitably replied.

SHOWER BATHS IN OFFICES

Winfield R. Sheehan, who is now the business executive head of the Fox film organization, New York, has started a fad among executives who work at top speed that threatens to put a crimp in the New York luncheon business.

Sheehan recently installed a shower bath in the spacious offices. Instead of dashing out and gulping down a luncheon he takes a refreshing shower and is full of vim for the remainder of the day's grind.

Down in Wall Street plumbers are now installing shower baths in the offices of eight big financiers.

THE TIN PLATE MARKET

Vancouver, B. C.—Rumors are abroad here that lower adjustments on tinplate and manufactures thereof and other lines produced in Britain will be announced shortly after the New Year. Tinplate has heretofore been imported from Pittsburgh on a freight all rail rate of $31.70 per ton. The new water rate from the Old Country is $10 per ton and it is on this account, coupled with the saving on American exchange that will permit a reduction. To meet the water competition a rail rate of $20 has been announced but this will still keep the American product out of this market, it is stated.

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights —Keep the Entire Series Where It May Be Referred to and Studied

Article No. 45 of Series; Illustration No. 54

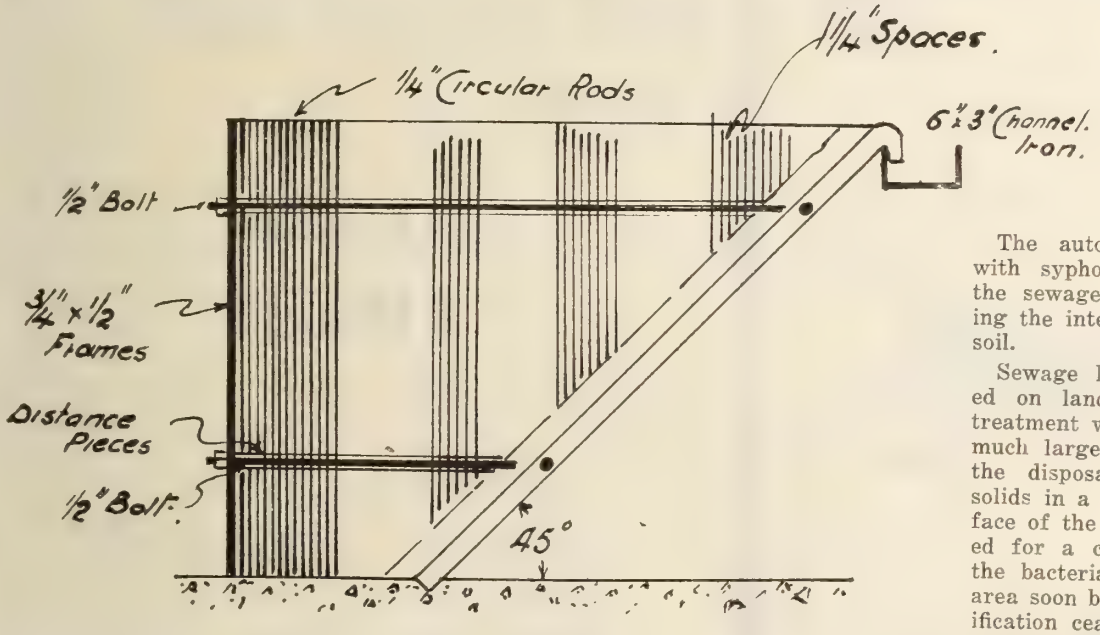


FIG. 54.

CHAPTER VII

(Continued from last issue)

FILTRATION

FIRSTLY, under this heading, we will consider the easiest, cheapest and most natural filter for the purification of sewage, namely, land treatment.

The land produces a quick purification of sewage by a process of oxidation which requires the presence of a plentiful supply of air. This necessitates dividing the filtration area up into different parts so that the sewage can be diverted onto the different parts as the case requires, otherwise, if the land was continuously soaked in sewage there would be little chance for oxidation to take place, then the final purification of sewage would cease and the ground become "sewage sick."

The millions of tiny bacteria existing in the upper layers of the soil (and these only exist and thrive well with a plentiful supply of light and air) attack and feed upon the organic matter, usually in colloidal suspension in the clarified tank effluent, and convert same into harmless compounds which can be discharged into any running stream in a well-purified state free from any smell or harmful germs. This nitrifying action only takes place with the aid of aerobic bacteria and it is absolutely essential that the land under treatment should be intermittently treated always allowing a periodical rest between each treatment so as to ensure the bacterial microbes being supplied with air and light.

Should the area of land required for filtration purposes not be available, in order to provide the rest required or should the filtration area ground be water logged or become "sewage sick," then steps should be immediately taken to carefully and well underdrain the land as explained later in this chapter, with proper tile drains, for it must always be kept in mind that the tank effluent comes onto the land through the tile drains entirely without oxygen, and that its reduction by aerobic bacteria depends entirely upon the supply of air and porosity of the surrounding soil. So that the drains should not be buried too far in the soil but kept as near the surface as possible and the selection of your filtration area should be in open porous soil whenever possible.

The automatic discharging chamber with syphon provides for discharging the sewage intermittently, this providing the interval of rest required by the soil.

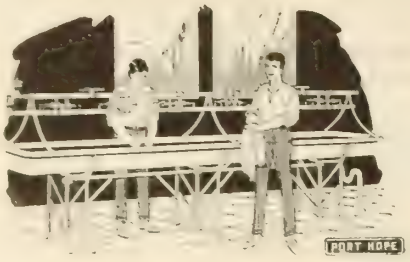
Sewage has been successfully treated on land direct without any tank treatment whatever, but this requires a much larger area than is generally at the disposal of private houses — the solids in a short time clog the top surface of the soil unless the area is rested for a considerable period to allow the bacteria to split up the solids the area soon becomes sewage sick and purification ceases and it is always advisable to pass the sewage through some form of tank treatment, then if same is allowed to flow freely over the filtration land area to slowly percolate into the soil at the same time being purified by the oxidization process.

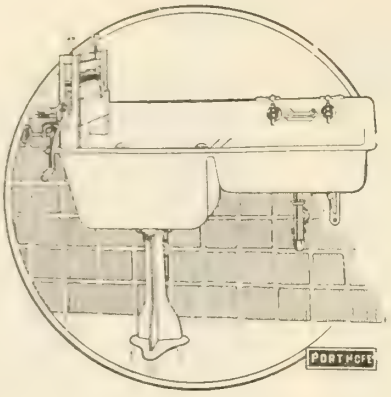
This methhod of filtration is termed "Broad irrigation" and is adopted in many English towns and cities where land is plentiful for sewage purposes and the nature of the soil is suited for filtering purposes. The land is generally worked by a sewage farmer who grows, with success, cereals, roots, grass, etc. for the local market. In most cases the land is well underdrained and rested periodically.

The soil should be a light loamy soil five feet deep, the sewage applied evenly in thin layers so that it can absorb the oxygen from the air and gradually sink into the soil where the ammonia compounds are chemically changed into harmless nitrates and the purified effluent then passes into the land drains which discharge through an inspection manhole into the stream.

Soils of a clay-like nature should be well under-drained and always kept moist, otherwise cracks appear through the action of the sun and the sewage gains direct access to the sub-soil drains without undergoing the least purification.

(Continued in Next Issue)





1921

1922

1923?

The past is past—the future is all-important. "Ring out the old, Ring in the new" could well be applied to businesses today. Conditions demand that all non-essentials be discarded. On a foundation of proven methods and merits must be built a new structure, strong enough to withstand conditions as they are—and will be; not as they were.

One Selling Talk a Day In 1922

Many thousands of homes in Canada, hundreds in our own cities; and scores in our own neighborhoods require new plumbing conveniences—now.

Even one honest sales effort per day in 1922, on the part of every master plumber would result in a very gratifying volume of sales for the year.

Selling was not easy in 1921—it will not be easy in 1922. Therefore the effort must be honest—it must be real.

But the bare merits of the service offered, the quality of modern fixtures, and present price levels, should dispel to a great extent reluctance to making expenditures at this time. For what better selling points could any salesman want than the plumber has in the telling of his story:—the picture of added comfort; how a glistening snow-white bath room is a never failing source of pride—how visitors are welcomed—not repelled; why efficient home sanitation not only safeguards health but actually saves lives.

Port Hope Sanitary Mfg. Company, Limited

Factory PORT HOPE | Winnipeg Office 405 TRIBUNE BLDG. | Head Office ROYAL BANK BLDG., TORONTO | Montreal Office 104 SOUTHAM BLDG.

Reduced Prices Are Stimulating Building

Fourteen Thousand New Buildings This Year as Against 11,000 Last Year—Expect Big Year in 1922.

LONDON, Ont.—A number of decidedly interesting features in connection with the building situation were discussed here this week at the annual convention of the Mason Contractors' Association of the United States and Canada. Prices of materials, prices demanded by labor, freight rates, the apprentice problem and the general outlook were among the leading questions discussed. The opinion was general that reduced prices of materials are having a stimulating effect on building and this year will see 14,000 new buildings constructed as against only 11,000 last year. It was pointed out that there is every prospect, that 1922 will make new records in construction work. There is no doubt of the very large amount of work held over owing to the general public having the view that both labor costs and materials costs must come down. Various speakers gave figures showing how material costs have been steadily coming down. The report of Secretary McGarvey regarding investigations into labor costs in fifty-one cities was not so encouraging. In some places he said the men have seen the wisdom of accepting lower wages in an effort to restore normal business. In many others however, they have flatly refused to accept any reductions with the result that only 72 per cent of them had secured employment.

In this connection it was pointed out to Sanitary Engineer by several delegates that had the mechanics been willing to accept even a ten per cent cut in wages, contractors would have been enabled to put in figures on prospective work that would have insured it going ahead. In this way the men would have been money in pocket at the end of the season, would have lost no time at all, and indirectly would have benefited other industries by creating a demand for the materials required. Many of them it is believed are now seeing the mistake that was made and it is expected that next year's building program will be greatly helped by a more reasonable attitude on the part of the men in various trades.

The opinion was general that lower freight rates will also help greatly in getting business back on a normal basis again.

The apprentice problem is so serious at the present time that Vice-President Thomas Preece estimates that at least 10,000 more bricklayers are required all over the country. There is a serious shortage of apprentices in the plumbing and heating business. In the building trades a careful survey showed that 800 contractors have among them only twenty apprentices.

In connection with the building situation for 1922 it was pointed out to Sanitary Engineer that all over the Dominion there is an acute shortage of homes. This is especially the case in connection with small houses suitable for workingmen to buy or rent. In many industrial centres such houses are now at a premium. Delegates agreed that there is a big field in this situation for profitable business, and also in home building generally, and inquiries that are being made among the contractors indicate that a large number of people who are tired of paying high rents for homes that are not suited to their requirements are planning to build. The crux of the situation according to several delegates centres around labor, and if the men in the building trades are willing to work for reasonable rates they are confident that 1922 will see all past records for building broken.

SELF-CORROSION OF CAST IRON PIPES

(Continued from page 15)

The most remarkable confirmation of our work was disclosed by the translation of an article by P. Medinger describing the corrosion of cast iron water pipes at the Town of Esch, in the Grand Duchy of Luxemburg, in Europe, published in Berlin in 1918.* Here the pipes were laid in a soil heavily charged with calcium sulphate, and the condition of the pipe and the corrosion products were identical with what we have found in Winnipeg and vicinity. Direct action of stray currents or of free acids were in this Luxembourg case known to be entirely absent. Mr. Medinger's researches extended over two years and are a valuable contribution to electrochemical literature. They confirm the fact that the self-corrosion of cast iron pipe is inevitable under conditions as we find them in the Red River valley, without any assistance from stray current.

Preventive Treatment

As this research only covers the beginning of the subject, there has not been time to explore any commercially possible methods of inhibiting corrosion. Chemical methods might be attractive if they are practicable. Evidently there is as wide a field for chemical research for the protection of metals as for that of concrete.

Treatment of pipes with tar and similar paints or dips has proved generally futile. The engineers of the Rochester Waterworks have recommended two coats of certain special "Detroit Graphite" paints covered by a third coat of so-called "Trus-Con Special" paint, for protection of an additional steel conduit, in the light of the experience they have had in protecting their earlier conduits. If it really protects steel, it might also protect cast iron. The specifications for the paint and its application are exceedingly rigid.

A method that we believe would probably lengthen the life of cast iron pipe in a wet salty clay soil, without depending on a thin layer of paint, is to backfill the pipe trench with quartz sand or washed gravel, which, though it cannot prevent access of salt solutions, will probably cause salt solutions to be less concentrated by the time they reach the pipe and will allow atmospheric oxygen to form a thin coating of rust. Some authorities believe this to retard the rapidity of the solution of iron, which is thought to be more rapid when atmospheric oxygen is sealed off from a pipe by a jacket of wet clay.

Mr. E. L. C. Forster, Chemist on the staff of the Dominion Health Board, has advised us that a very small alloy of aluminum with cast iron prevented the formation of microscopic shrinkage cracks on the surface of cast iron. This was formerly a trade secret, but was made public during the war for the benefit of makers of munitions and is now said to be public property. It would seem that the absence of minute surface cracks might render the silicious coating of cast iron pipe more impervious to salt solutions. Any method of casting pipe which could produce a flawless coating of silicate outside of the iron, that would resemble a jacket of enamel, would certainly prevent or retard iron from going into solution.

A steel conduit at New Bedford, Massachusetts, where it passed through two miles of peaty swamp, was backfilled with gravel and suffered no trouble from corrosion up to the time it was examined after having been in use for 10 years.

It seems to be a fact that although the soils of many sections in the Western United States carry a large content of alkaline salts, these soils are so generally porous as not to hold water in contact with buried pipes, and there have been no conspicuous cases of corrosion under such circumstances in that part of the country. Everything seems to point to the desirability of imbedding buried pipes in sand or gravel whenever possible.†

The foregoing are the only expedients that we can offer at the moment, but we trust they may prove suggestive to members of the profession who are especially interested.

In conclusion we desire to point out that the foregoing memoranda are not intended to convey the impression that stray current corrosion does not happen in any moist soil, where the pipes are actually found to be electrically positive to other buried conductors connected with a railway power station bus bar; but we think we have demonstrated that where there is no stray current possible or where stray current may be flowing into a pipe and not out of it, a wet clay soil charged with alkaline salts must inevitably and automatically corrode a cast iron pipe.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

MARKETS AT A GLANCE

THE NEW YEAR markets commence with additional price recessions on plumbing and steam-fitting supplies. The new list on wrought pipe supplies one of the premier changes, an approximate reduction of 8 per cent. being effective on standard steel and iron piping from December 22. Lower quotations have also been recorded on cement, while the discounts covering radiators and boilers have been revised, thus registering easier price levels on these products.

Substantial declines have been announced on ware products, this change effecting tinners' trimmings, tinware, galvanized ware, and similar lines. Other price reductions noted on the current markets appear on small packings, including asbestos wick, square braided flax and trade packing.

Enamelled ware prices remain at the recent revisions, while the quiet season is now evident in closet equipment. The undertone in copper products and also the lead and zinc markets, retain the recent firmness, although trade in these lines is seasonably dull. Little variation is noted in pipe fittings, with the shading in range boiler quotations now becoming almost general. A readjustment in the soil pipe markets is still being looked for, the variation in discounts showing no signs of immediate change. There is less activity in scrap materials, while the ingot markets also record the seasonal moderate tone attributed to the holiday period.

MONTREAL MARKETS

MONTREAL, December 30.—Outstanding in the market reports covering plumbing and steam-fitting supplies is a reduction in wrought iron and steel piping. From December 22nd all sizes of both black and galvanized pipe will show a reduction of approximately 8 per cent. Both black and galvanized sheet prices are reduced in some quarters, showing the trend of the sheet market still in a downward direction. A minor reduction is recorded in certain smaller packings, including asbestos wick, square braided flax, and trade packings. To the tinsmithing trade an important development is the announcement of lower prices on enamelled ware, tin ware and many products used in the tinshop. To those who carry a stock of manufactured tin ware the reductions will prove most interesting, while to the average shop all kinds of trimmings used in the making of utensils will now sell for less. A reduction has also been announced on radiators and boilers.

Solder quotations show a further slight advance, this being the third price increase in the past few weeks. Cement prices are for the present holding, but a revision in a downward direction is expected early in the New Year. The same can be said of cotton waste, dealers anticipating a revision next month. Range boilers are still rather unsettled, with the lower prices, announced in last issue, prevailing in most quarters. Enamelled ware is now on a more stable basis, selling at the recent reduction. The ingot metal markets are displaying a little easier tone, which is attributed to the present quiet period accompanying the holiday and inventory seasons.

QUIET PERIOD FOR SCRAP METALS

Montreal.

Waste material markets are generally quiet with the closed winter weather now well at hand. The better feeling in the market of last month, especially in non-ferrous metals, is now spent owing to the quieter demand. Prices on these scrap metals are however holding fairly steady for the present, in sympathy with the ingot markets; but as one dealer stated, prices are not a factor that would likely assist toward increased activity at the present time. Iron and steel scrap remain very dull, little business showing in these for some time past. Following are present nominal quotations;

SCRAP—

Automobile tires	0 75
Rubber Shoes	0 03
Yellow brass	0 05
Red brass	0 09
Light brass	0 03¼
Scrap zinc	0 03 0 03¼
Lead, heavy	0 04¼
Lead, tea	0 02½
Light copper	0 08
Heavy copper	0 10½
Wrought iron, R.Rd., No. 1 per gr. ton	10 50
Malleable scrap (ton)	8 00
Pipe scrap (ton)	6 50
Heavy melting steel	7 50 to 8 00
No. 2 busheling	4 00
Boiler plate	8 00
No. 1 machinery cast	21 50

REDUCTION ON WARES AND TINSMITHING PRODUCTS

Montreal.

A recent reduction on enamelled ware, tinware and other products includes many lines used in the tinshop, and is of particular interest to those who stock manufactured tinware and other supplies. The changes vary on the different products, but the average decrease on staple lines is approximately 20 per cent. Effective December 22nd., following are products that will prove of interest to the tinsmithing trade, showing reduced prices;

Stamped tinwars, plain, 50-10 per cent discount.
Stamped tinware, retinned, 50 per cent discount.
Pieced tinware, 20 per cent. advance on list.
Stove boards (wood lined) 25 per cent. discount.
Stove boards (paper lined), 40 per cent. discount.
Sheet iron and steel ware, 10% advance on list.
Steel sinks, net list.
Coal hods, japanned, 33 1-3% advance on list.
Coal hods, galvanized, 33 1-3% advance on list
Stove pipe elbows, net list
Light black elbows 6", $2.00 dozen net.
Light black elbows 7", $2.20 dozen net.
Galvanized elbows, net list.
Stope pipes, etc, net list.
Chimney thimbles, net list.
Dampers, etc., prices on application.
Tinners' trimmings, plain, 50-10 per cent.
Tinners' trimmings retinned, 50 per cent.
Creamery can taps, prices on application.
Milk can trimmings, 33 1-3% advance on list.
Copper bottoms, net list.
Trimmings general, net list.

FURTHER SLIGHT ADVANCE IN SOLDERS

Montreal.

Solder quotations are again increased, this making the third price advance in the past few weeks. These revisions are necessarily made through the continued strength of metals in primary markets, lead, copper and spelter displaying a very firm tendency. Tin is now showing a little weaker, but not to the extent that would cause any marked change in the general undertone of the market. These metals are not quite as active as in previous weeks, but this is

only considered temporary, and the turn of the year may yield further developments.

Other lead products remain unchanged in price, but the undertone in these also is firm. Zinc sheets are also unchanged, but here also present quotations are very firm. It is stated that competition is the real factor in the maintenance of prevailing prices. Present quotations are as follows;

Lead pipe, per 100 lbs.	12 50
Lead waste, per 100 lbs.	13 50
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	10% off
Lead wool, lb.	0 13½
Lead sheets, 2½ lbs.	0 10½
Lead sheets, 3 to 3½ lbs., sq. ft., lb.	0 10¼
Do., 4 to 8 lbs., sq. ft.	0 09½
Cut sheets ¼c lb. extra and cut sheets to size, ¾c lb. extra.	
Solder, guaranteed, lb.	0 28½
Do., strictly, lb.	0 26½
Do., commercial, lb.	0 23½
Do., wiping, lb.	0 24½
Do., wire, lb.	0 38
Zinc, sheets, casks	0 11½
Do., broken lots	0 12

LOWER QUOTATIONS APPEAR ON RADIATORS AND BOILERS

Montreal.

Quotations on both radiators and boilers record a decline effective January 1, 1922. The extent of the reduction on the standard radiators is approximately 13 per cent, while prices on water and steam boilers are lowered around 10 per cent. Following are the current revisions:

Radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

45 in. to 38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60. Discount, 59% for hot water and 60% for steam.

Wall Radiators—5 ft., $1.15; 6 ft., $1.10; 7 ft., $1.05; 9 ft., $1.05; 12 ft., $1.05. Discount [illegible]

Boilers.—Round hot water boilers, low base only (high base discontinued) sizes from 0 to 10, 60 per cent. off list.

Square or sectional hot water or steam boilers, 15-in., 15 per cent.

For Ontario Government trimmings add 5 per cent.

Square or sectional water boilers, 19-in to 36-in. 20 per cent. off list.

Square or sectional steam boilers, 19-in. to 36-in., 15 per cent. Ontario Govt. trimmings, net list.

Round steam boilers, standard trimmings, 28 per cent. off. Ontario Government trimmings, 15 per cent.

All prices f.o.b. Toronto, Montreal, Guelph, Hamilton, St. Catharines or Brantford.

SHEET PRICES LOWERED IN SOME QUARTERS

Montreal.

Lower quotations appear on both black and galvanized sheets in some quarters of the local market, although there is really little or no change in the undertone. For some time past it has been necessary to quote prevailing prices with a range, as a variation has existed among the different jobbing houses. Dealers who were previously quoting the higher prices have now announced a slight reduction, but the change is purely local, and other dealers are maintaining their former levels. The demand at present in both black and galvanized sheets is seasonably light, but there is some activity noted in the tin plate, although of a spasmodic nature. Little improvement in general is looked for until after the quiet weeks of next month, although one large local distributor stated that a better buying movement should develop immediately following the inventory period as undoubtedly stocks in all sections were very low. Following are local nominal quotations;

BLACK SHEETS—	
19 gauge	4 40 1 50
12 gauge	4 40 4 60
14 gauge	4 40 4 70
16 gauge	4 50 4 80
18-20 gauge	4 50 5 05
26 gauge	4 50 5 25
22-24 gauge	4 65 5 25
28 gauge	4 75 5 35
GALVANIZED SHEETS—	
10¾ ounce	6 75 7 60
28 gauge	6 30 7 20
26 gauge	6 05 6 85
22-24 gauge	5 90 6 60
20 gauge	5 75 6 45
18 gauge	5 75 6 35
16 gauge	5 60 6 35
14 gauge	5 45 6 35
12 gauge	5 30 6 35
10 gauge	5 30 6 35

English Standard—	Queen's Head.	Fleur-de-lis
28 gauge	8 25	7 75
26 gauge	8 00	7 60
24 gauge	7 40	7 10
22 gauge	7 05	6 65
18-20 gauge	6 35	5 20

NOTE—These prices are for full bundles; an extra charge of 25c to 35c per 100 lbs. is made for broken lots. Extra for sheets 4 ft. wide, 50 cents per 100 pounds. Extra for sheets 3 ft. wide, 28 ga. and 10¾ oz. 25 cents per 100 lbs.

CANADA PLATES—	
Dull.	
18 x 24 x 52s	5 60
18 x 24 x 60s	5 80
18 x 24 x 75s	6 10
WELSH CANADA PLATES—	
Polished.	
18 x 24 x 52s	8 25
18 x 24 x 60s	8 50
BRIGHT TIN PLATES	
20 x 28 x 100 lb. bases	17 50
20 x 28 IC., 112s	18 00
20 x 28 IX, 112s	20 00
20 x 28 IXX, 50s	11 25
20 x 28 IXXX, 56s	12 00
TERNE PLATES	
20 x 28 IC, 112s	17 50

NO CHANGE IN BAR IRON AND STEEL

Montreal

With local stocks very low, and the buying movement now showing a seasonable recession, the local situation on bar iron and steel is practically unchanged this week. There is still the easier tone in the market owing to the quiet demand, and prices are more or less nominal as lower quotations are given in almost all quarters for fair sized orders. The position at primary sources is said to be one of waiting. Prevailing levels are generally admitted to be at the bottom, with present replacement costs, and any spurt in demand with the opening of the new year months is expected to bring about a steady to firm market. Following are present quotations;

IRON & STEEL—	
Common bar iron, 100 lbs.	2 90
Refined iron	1 40
Iron finished machinery steel	2 95
Mild steel	2 90
Single reeled machinery steel	4 75
Band steel	2 90
Spring steel	1 50
Sleighshoe steel	2 90
Tire steel	3 10
Toe calk steel	3 80
Harrow tooth steel	3 05
Mining teeth steel per lb.	0 22
Black Diamond tool and cast steel	0 22

NOTE—Refined iron is approximately $1.50 per 100 lbs. over base, but fluctuates owing to unsettled market.

NEW LIST REDUCES WROUGHT PIPE PRICES

Montreal.

A reduction of approximately 8 per cent is made in wrought pipe in the announcement of the new standard list. Effective December 22nd. list No. 54 will now be the selling basis for both wrought iron and steel piping. For some time past easier prices were predicted but it was thought that nothing would develop in regard to lower prices until after the turn of the year. With the new lower prices now in effect it is hoped a more stable situation will ensue, price-shading having appeared in some quarters previous to this announcement. Following is list No. 54.

WROUGHT PIPE

Price List No. 54. December 22, 1921.

Standard Buttweld Pipe S/C

Per 100 feet.

Size	Steel Blk.	Steel Galv.	Gen. Wrot. Iron Blk.	Gen. Wrot. Iron Galv.
⅛ in.	$ 6 00	$ 8 00	$	$ ....
¼ in.	3 84	5 94	7 20	9 30
⅜ in.	3 84	5 94	7 20	9 30
½ in.	4 85	6 46	7 31	8 93
¾ in.	5 87	7 71	8 86	10 70
1 in.	8 16	11 05	12 58	15 30
1¼ in.	11 04	14 95	17 02	20 70
1½ in.	13 20	17 88	20 35	24 75
2 in.	17 76	24 05	27 38	33 30
2½ in.	28 08	38 03	.....	.....
3½ in.	47 84	63 48	.....	.....
4 in.	56 68	75 21	.....	.....

Standard Lapweld Pipe S/C

Per 100 feet.

Size	Steel Blk.	Steel Galv.	Gen. Wrot. Iron Blk.	Gen. Wrot. Iron Galv.
2 in.	$21 46	$27 38	$31 08	$37 00
2½ in.	31 59	40 95	46 80	56 16
3 in.	41 31	53 55	61 20	73 44
3½ in.	48 76	65 32	72 68	89 24
4 in.	57 77	77 39	86 11	105 73
4½ in.	66 04	86 36	1 04	1 24
5 in.	76 96	100 64	1 21	1 45
6 in.	1 00	1 31	1 57	1 88
7 in.	1 33	1 76	2 02	2 45
8L in.	1 40	1 85	2 13	2 58
8 in.	1 61	2 13	2 45	2 97
9 in.	1 97	2 59	2 97	3 59
10L in.	1 82	2 40	2 75	3 33
10 in.	2 35	3 09	3 54	4 28

SMALL DEMAND FOR BOILER TUBES

Montreal.

There is little or no change in the market for boiler tubes, with the demand now receding to the usual quiet period at this season. Little improvement is looked for until after the opening weeks of the new year as these, and other heavier goods, are very inactive around the closing months of the year. Following are local prices on the various sizes;

BOILER TUBES—	Seamless	Lapweld
1 inch	24 70	.....
1¼ inch	24 50	.....
1½ inch	24 00	.....
1¾ inch	26 00	26 00
2 inch	24 50	20 50
2¼ inch	27 75	23 50
2½ inch	32 50	24 50
3 inch	40 00	30 50
3½ inch	52 50	34 75
4 inch	65 00	44 00

LOWER PRICES ON SOME SMALLER PACKINGS

Montreal

New lower prices are announced on some of the smaller packings, including asbestos wick, square braided flax and trade packing. Asbestos wick will now sell for 80 cents per pound, square braided flax 60 cents, and trade packing at 30 cents per pound.

EAVESTROUGH PRICES STEADY

Montreal.

Little further activity is expected in eavestrough and conductor pipe until the earlier spring sales, the season having now advanced to the usual dull period. Prices are holding at the revision of November last with chances of any change in this direction said to depend on the sheet markets in the new year. Unchanged quotations are as follows;

EAVESTROUGH—

O. G. Square Bead—Per 100 ft.

8 inch	10 inch	12 inch	15 inch	18 inch
$15 90	$17 70	$21 20	$28 80	$36 80

O. G. Round, and Half Round—Per 100 ft.

8 inch	10 inch	12 inch	15 inch	18 inch
$16 90	$18 70	$22 20	$29 80	$37 80

Discount 70 per cent. off list.

CONDUCTOR PIPE—Per 100 ft.

2 inch	3 inch	4 inch	5 inch	5 inch
$18 40	$22 30	$29 60	$40 00	$49 00

Discount 70 per cent. off list.

CONDUCTOR ELBOWS—

Plain round or round corrugated.

2 inch, list	5 25
3 inch, list	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00

Less 60 per cent.

LOWER CEMENT PRICES EXPECTED EARLY IN NEW YEAR

Montreal

For the present, quotations on cement are unchanged, but a revision in the nature of a decline is expected with the opening of the New Year. The extent of the reduction is yet uncertain, but Sanitary Engineer is informed that it will be of quite substantial proportion. With the holiday season now at hand business shows a slackening but an increased volume of business is expected to be shown next month as there is still a fair amount of building under construction requiring supplies.

RANGE BOILERS GENERALLY REMAIN AT LOWER LIST

Montreal.

The buying movement in range boilers is now of a minor nature, sales being none too numerous and for small quantities. This might be expected however, at this season, and dealers look for a quieter period until after the opening weeks of the new year. Notwithstanding the dullness, the market attracts attention through the still unsettled situation, and the variation in prices among manufacturers and jobbers. The lower list prices, quoted below, are in effect in most quarters, but certain others still hold the higher figures, maintaining the standard list has not been changed. However, competition is met from all sources and present prices are very nominal. There is expected to be some action taken early in the new year in the hope of stabilizing the situation.

RANGE BOILERS—	Std.	Ex. Heavy
30 gallon	8 75	11 25
35 gallon	11 25	13 50
40 gallon	13 50	16 00
52 gallon	20 00	24 50
66 gallon	28 00	34 00
82 gallon	35 00	46 50
100 gallon	45 00	55 00
120 gallon	54 00	63 25

CORRUGATED SHEETS NOW IN QUIET PERIOD

Montreal

Corrugated sheets have now entered into the usual quiet period at this season of the year. Sales have been fairly active up until the present month, but the colder weather has now caused a slackening in outside work where corrugated sheets are required. Priecs remain unchanged for the present, and developments in the new year are said to depend on primary sheet markets. Following is unchanged list prices and discount;

CORRUGATED SHEETS—	Per 100 sq. ft.
No. 28 gauge	6 50
No. 26 gauge	7 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50

Less 7½%.

Lighter than 24 gauge and wider than 27 inches, 75c a square extra.

FITTING PRICES UNCHANGED

Montreal

Quotations on the various kinds of pipe fittings are unchanged. A new list on wrought piping usually announces new quotations on nipples and couplings, but list No. 54 shows both these at unchanged discounts. Following are prevailing prices and discounts;

PIPE FITTINGS—	Per Cent.
Cast iron fittings	25
Bushings, cast	27½
Bushings, malleable	25
Flanges	37½
Plugs	27½
Flange unions	22½
Malleable unions	42½
Dart unions, black	33
Do., galvanized	13
Nipples, ⅛ to 4" close and short	50
Do., long	60
Do. 4½ to 8" close and short	40
Do., long	50
Couplings, 4" and under	30
Do., 4½" and larger	10

Pound Goods —	Blk.	Galv.
Class A	0 53	0 65
Class B	0 21½	0 28¼
Class C	0 14	0 21½

ENAMELLED WARE STEADY AT NEW PRICES

Montreal.

Although current sales of enamelled are now somewhat smaller owing to the advanced season, the market is settled on a much more satisfactory basis since the issuing of new prices earlier in the month. Previous to this there was a certain amount of unsettled feeling, and price-shading appeared in some quarters. General lower quotations appear to constitute the requisite for this betterment as prices are now uniform at all dealers. Distributors look for a quieter period until the opening weeks of early spring when building will again commence its activity. Following are list prices and discount;

Sinks, roll rim —			
18 x 30			$23 00
Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$ 7 50	$ 7 40	$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide			51 40
Bath tubs, 5½ feet			67 10
Lavatories—			
17x19 in. Apron F139 or P4045			15 30
18x24 in. Apron F154 or P3845 or P3847			23 60
18x21 in. Apron F169 or P4205			17 60
17x19 in. Roll rim. F241 or P4345			12 60

Less 33 1-3 per cent.

QUIETER TRADE IN CLOSET OUTFITS

Montreal.

Current trade in closet outfits is now of a very moderate nature, the season of the year, and the usual slackening in building operations being adverse to sales of enamelled ware in general. Quotations are remaining at the slight revision of two weeks ago as follows;

CLOSET OUTFITS—	
Closet, standard outfit	27 50
Do., with post hinge seat	28 50
Do., white vitro, vitreous china or enameled iron, with wash-down bowl and oak or mahogany post hinge seat	30 50
Do., reversible trap bowl, less spud	12 75
Do., add for siphon jet bowl	7 00
Do., for ⅜ in. valve on supply pipe	1 50
Do., deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	10 50
Do., reversible trap bowl, less spud	11 50
Do., siphon jet bowl, less spud	19 00
Do., Richelieu" bowl	9 00
Do., extra for spud	0 60
Do., oak, or oak-vitro tank, with fittings, less seat	14 25
Do., wood strip seat and cover	3 55
Do., post hinge seat and cover	4 25
Do., add for bar hinge	No extra
Do., white vitro, vitreous china, or enameled iron tank, with fittings, flush elbow and supplies less seat	18 50
Do., Vitrious China	20 00

SOIL PIPE QUOTATIONS ARE UNCHANGED

Montreal.

Local quotations on soil pipe and fittings are holding unchanged at considerably lower levels than exist in other markets. While there was a rumour that a revision to higher levels was likely to be made shortly after the last reduction in these products, there is stated to be no immediate sign of this taking place. With business now seasonably quiet, there will in all probability be no further development until a more active demand is felt after the holiday and inventory periods are over. Following are unchanged discounts;

SOIL PIPE—	
2 and 3 inch	47½%
4 inch	50%
5 and 6 inch	47½%
Fittings—	
2 to 6 inch	50-10%

BRASS AND COPPER SHOW LITTLE VARIATION

Montreal.

Current prices on brass and copper goods are holding at previous figures, while the undertone of the market is little changed although metals in primary markets are again somewhat easier in some instances. This is said to be chiefly due to the seasonable slackening in volume of buying and the lesser interest accompanying the holiday season. The commencement of the new year may yield a return of the activity of previous weeks. Unchanged quotations are as follows;

BRASS—	Base
Sheets	0 25
Rods, ½ to 1 inch, round	0 23
Tubing, seamless	0 32
COPPER—	
Rods, ½ to 2 inch	0 30
Soft sheets, plain, 16 oz. and heavier lb.	0 34
Plain tinned, 16 oz. and heavier, lb.	0 39
Polished and tinned, 16 oz. and heavier, lb.	0 43
Tubing, lb.	0 34

Above prices are for full sheets or bars. Cuts 5c. per lb. higher.

NEW YEAR MAY BRING REVISION IN WASTE PRICES

Montreal

For the present cotton waste prices are holding, but according to one large dealer, a revision early in the new year would not be surprising. The cotton market does not display the strength that was evident in the earlier Fall months and it will be remembered that while many other lines of cotton materials advanced in sympathy with the firmer tone in the market, cotton waste prices remained unchanged. It is for this reason that dealers are now lead to believe that lower prices will shortly be announced with the continued easier trend of raw cotton. Prevailing quotations are;

COTTON WASTE — Cream polishing, 20c; White, XXX, 17c; XX, 16c; X, 15c; XLCR, 15c; X Empire, 14c; X Press, 13c; 6 X Special, 12c. Colored, Fancy, 14c; Lion, 12½c; Popular, 10c; Keen, 9c. Wool Packing, Arrow, 30c; Axle, 25c; Anvil, 20c. Dominion Wipers, Washed and Sterilized, White cotton, 20c; colored cotton, 14c.

Above lines subject to trade discount for quantity.

COMPRESSION GOODS REMAIN AT RECENT REVISION

Montreal.

No further change has been made in prices on compression goods since the recent declines on certain valves and bibbs. Business is now somewhat quieter in the various lines with the undertone of the market little changed. Copper and brass in the metal markets retain their firmer standing but there is likelihood of this reflecting on these goods for the present, and continued strength in primary circles would be necessary to have any effect on finished products. Prevailing quotations are as follows;

COMPRESSION WORK—	
Compression work, standard	43%
Fuller work, standard	30%
Bath cocks, compression	30%
Basin cocks, Fuller No. 0	30%
Do., Nos. 1 and 2	30%
Flatway stop and waste cocks, standard.	54%
Roundway stop and waste cocks, std.	46%
Brass steam cocks, standard.	40%
Radiator valves, standard	58%
Do., removable disc	58%
Globe, angle and check valves, standard	20%
Gate or straightway	16/10%
Emco Globe Valves	20%
Emco check valves	20%
Jenkins Globe, angle, check and swing check	19%
Jenkins gate or straight way	25%
Jenkins iron body, globe and angle	15%
Jenkins iron body gate	33%

PLUMBERS' OAKUM REMAINS AT DECLINE

Montreal

No further change has been made in oakum prices since the slight reduction of two weeks ago, and the local price is $7.35 per 100 pounds.

EASIER TONE IN SOME METALS

Montreal.

The metal markets have been quiet during the holiday season and changes in prices have been few, although lead shows slightly lower quotations, spelter is a little easier. Buyers are generally busy with the inventory period and are not much interested in market prices.

TIN—Tin is holding fairly well in London although future movements are somewhat uncertain at present. In the meantime the local market is little changed at 39 cents.

COPPER.—There is no change in the copper market on this side, and London is also comparatively quiet. The market is steady however, without any great change in quotations. Local quotations are unchanged at 18 cents for electro, 17¾ cents for casting.

LEAD—London lead has at last commenced to decline in price, but this is not unexpected in view of the high prices prevailing there. This change, however, has no effect on local figures as these have been well below the London levels. The local market is slightly easier at 7¼ cents.

SPELTER—There is a sightly easier tone in both the London and East St. Louis markets and in view of the decline in New York exchange, there is also an easier feeling here. Quotations, however, hold at previous quotation of 7½ cents.

ANTIMONY—This metal continues quiet on the local market and the tone is slightly easier with quotations shaded to 6¾ cents for Chinese, and 7¾ cents for high grade English.

ALUMINUM—Aluminum is still featureless on the market with prices holding at 26 cents.

TORONTO MARKETS

TORONTO, December 30.—Many downward revisions in quotations on plumbing and steam-fitting supplies become effective with the commencement of the New Year. Substantial declines on radiators and boilers attract attention in this respect, the prices on standard radiators being lowered approximately 13 per cent., while both steam and water boilers record a similar revision in the neighbourhood of 10 per cent. The new list on wrought piping also supplies one of the features in the current market reports, the quotations on standard steel and iron pipe now being around 8 per cent. lower than formerly. Reduced prices are also recorded on cement, while a downward price revision appears on ware products, including tinners' trimmings, enamelled lines, tin ware, galvanized ware and similar goods. A readjustment is still being looked for in the soil pipe markets, the variation in discounts showing no signs of immediate revision. The shading of quotations on range boilers has now become almost general.

LOWER PRICES ON CEMENT

Toronto.

Lower prices on cement have now materialized, the extent of the reduction being in the neighbourhood of 9 per cent. Quotations on barrels in car load lots have been lowered to $3.70, while the price on single bags is reduced to $1.10.

The trend of the market has been easier during the last few weeks, building activities being of a moderate nature at this season of the year, while stocks of cement are described as fairly heavy. The current revisions are as follows:

CEMENT— Car load lots.	Toronto.
Per barrel, delivered	3 70
Less car lots .	
Per barrel, f.o.b. yard	4 30
Per barrel, delivered	4 50

Single bags, $1.15 each; 4 bags to barrel.
Extre charge of $1.50 per load on less than 24 bag lots.
Rebate of 20 cents for empty sacks.

NEW LIST SHOWS REDUCTION IN WROUGHT PIPING

Toronto.

A decline of approximately 8 per cent. has been made in prices on standard steel pipe. The new list, which is number 54, supersedes the previous list, which has been in effect since September 22. Some easier prices on piping were more or less anticipated at the commencement of the New Year, but the revision materialized a little earlier than was generally looked for. The pipe markets as a whole have registered a fair proportion of activity, with the movement slowing up during the last few weeks. At the same time, production of steel piping has been on a fairly steady basis, with the result that some slight price shading developed in independent steel circles. To meet this competition, other producers have announced the new price levels, effective immediately. The domestic markets are now governed by List No. 54.

WROUGHT PIPE

Price List No. 54. December 22, 1921.

Standard Buttweld Pipe S/C

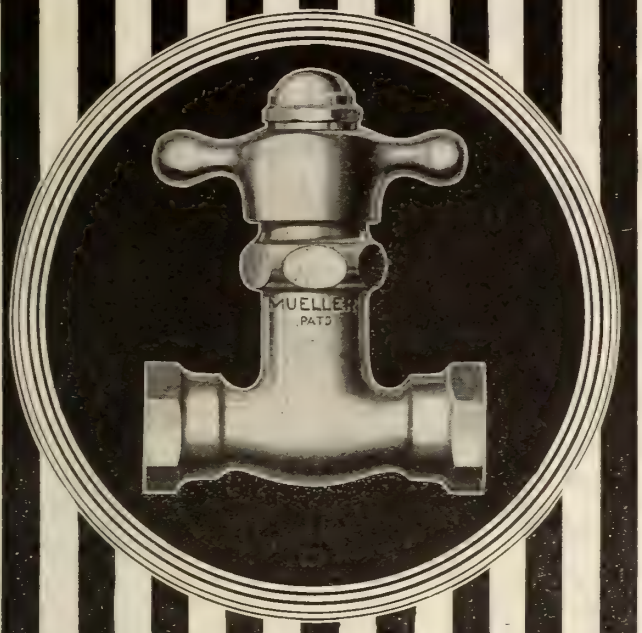
Size	Steel Blk.	Steel Galv.	Gen. Wrot. Iron Blk.	Gen. Wrot. Iron Galv.
⅛ in.	$6 00	$ 8 00	$	$ ....
¼ in.	3 84	5 94	7 20	9 30
⅜ in.	3 84	5 94	7 20	9 30
½ in.	4 85	6 46	7 31	8 93
¾ in.	5 87	7 71	8 86	10 70
1 in.	8 16	11 05	12 58	15 30
1¼ in.	11 04	14 95	17 02	20 70
1½ in.	13 20	17 88	20 35	24 75
2 in.	17 76	24 05	27 38	33 30
2½ in.	28 08	38 03	.....	.....
3½ in.	47 84	63 48	.....	.....
4 in.	56 68	75 21	.....	.....

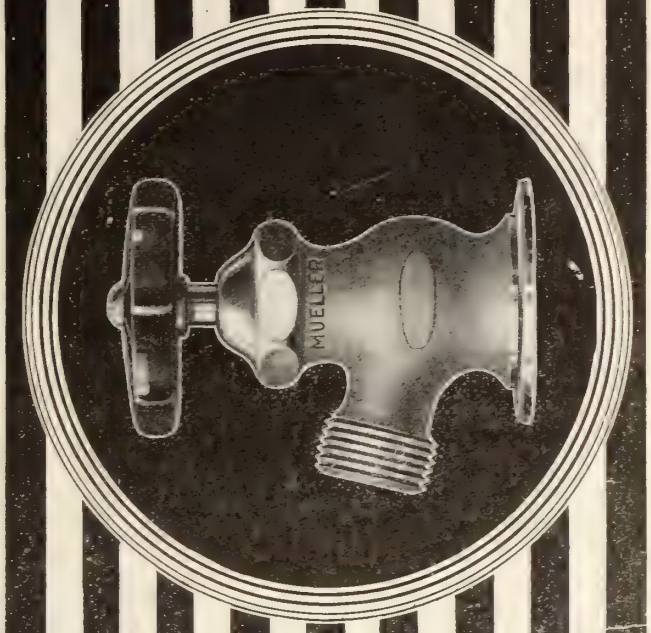
Standard Lapweld Pipe S/C

Per 100 feet.

Size.	Steel Blk.	Steel Galv.	Gen. Wrot. Iron Blk.	Gen. Wrot. Iron Galv.
2 in.	$21 46	$27,38	$31,08	$37 00
2½ in.	31,59	40 95	46 80	56 16
3 in.	41 31	53 55	61 20	73 44
3½ in.	48 76	65 32	72 68	89 24
4 in.	57 77	77 39	86 11	105 73
4½ in.	66 04	86 36	1 04	1 24
5 in.	76 96	100 64	1 21	1 45
6 in.	1 00	1 31	1 57	1 88
7 in.	1 33	1 76	2 02	2 45
8L in.	1 40	1 85	2 13	2 58
8 in.	1 61	2 13	2 45	2 97
9 in.	1 97	2 59	2 97	3 59
10L in.	1 82	2 40	2 75	3 33
10 in.	2 35	3 09	3 54	4 28

(Continued on page 30)





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The wide range of design, the uniform quality and the tested worth of each article make it a pleasure for plumbers to sell and install *MUELLER* goods. The precision with which every thread and joint is finished insures satisfaction to the user and saves time for the plumber. See A-1240, A-1245, A-1513 and A-1517.

Write for catalog and prices. Mail orders given immediate attention.

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Water, Plumbing and Gas Brass Goods and Tools.

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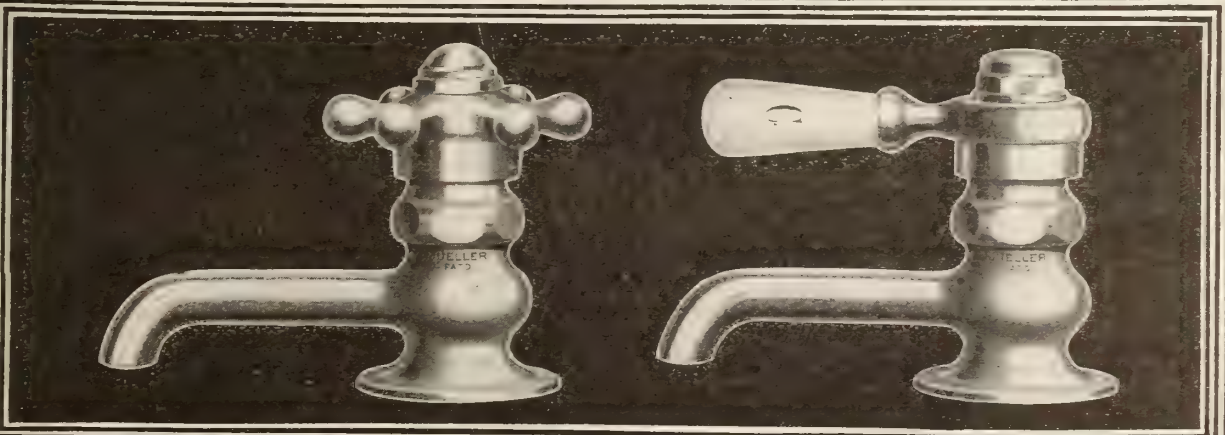
Mueller Metals Co., Port Huron, Mich., Makers of "Red Tip" Brass Rod; Brass and Copper Tubing; Forgings and Castings in Brass, Bronze and Aluminum; Die Castings in White Metal and Aluminum; also Screw Machined Products.



TORONTO MARKETS

(Continued from page 28)

QUIET SESSION NOTED IN CLOSET EQUIPMENT

Toronto.

Current trade in closet combinations and fixtures is recording a quiet session, with the holiday and inventory periods contributing towards this seasonal dullness. Quotations remain nominally unchanged at the followig levels, with little interest being displayed in these markets:

	each
CLOSET COMBINATIONS, low down	
Closet, standard outfit, oak	28 00
Do., with post hinge seat	28 75
Do., mahogany Vitro or Pussyfoot, with mahogany post hinge seat and cover	31 00
Do., vitreous china, with oak post hinge seat and cover	31 55
Do., vitreous china, with mahogany post hinge seat and cover	31 75
Do., white Vitro or Pussyfoot, with maoak post hinge seat and cover	31 55
Do., white Vitro or Pussyfot, with mahogany post hinge seat and cover.	31 75
Do., enamelled iron tank with oak post hinge seat and cover	31 55
Do., enamelled iron tank with mahogany post hinge seat and cover	31 75
Additions or reductions to above	
Add for reversible trap bowl	1 25
Add for syphon jet bowl	7 00
For ⅜ in. valve on supply pipe	1 50
Deduct for supply pipe	0 70
Deduct for floor flange and bolts	0 80
CLOSET BOWLS—	
Washdown bowl, less spud	10 00
Reversible trap bowl, less spud	11 25
Syphon jet bowl, less spud	17 00
"Richelieu" bowl	10 50
CLOSET TANKS, low down	
Oak, Vitro or Pussyfoot tank with fittings, less seat	13 10
White Vitro or Pussyfoot tank with fittings, flush elbow and supply	15 25
Vitreous china tank with fittings, flush elbow and supply	18 00
Enamelled iron tank with fittings, flush elbow and supply	20 25
CLOSET SEATS—	
Oak wood strip seat and cover	3 70
Oak post hinge seat and cover	4 75
Mahogany finish post hinge seat and cover	5 00

SUBSTANTIAL REDUCTIONS ON WARE PRODUCTS

Toronto.

All ware products now record an average price reduction on staple lines of approximately 20 per cent. This change is effective at once, and applies to such products as tin ware, enamelled ware, galvanized ware and similar lines. The changes vary to some extent on the different products, some wares, recording substantial declines, while other lines not showing quite such drastic revisions. The actual list remains unchanged, but the discounts have been altered all through on a more or less generous scale.

Following are the revised discounts on a few sheet metal lines: all quotations f.o.b., Toronto, with freight equalized with Montreal, Hamilton and London:

Tinners' trimmings	Net list
Except copper bottom	Net list
Plain tinners trimmings	50-10 per cent.
Roofers' tinners' trimmings	50 per cent
Handles, reaching strips, sheers, steel wire brushes	Write for prices.
Stove boards, paper lined	40 per cent.
Stove boards, wood lined	25 per cent.
Dampers and damper clips	25 per cent.
Stove pipe elbows, tin and black	Net list
Stove pipe elbows, galvanized	Net list
Stove pipe elbows, light, 5 and 6", $2 per doz. net	
Stove pipe elbows, light, 7 in.	$2 20 per doz. net
Stove and range pipe	Net list
Water spirals	50 per cent

LITTLE VARIATION NOTED IN PIPE FITTINGS

Toronto.

Quotations on pipe fittings are generally being maintained at the revised levels recently effective, with little variation having been recorded in the market for these products. While some slightly easier levels were looked for in some quarters on wrought nipples and couplings owing to the reduction which occurred in wrought piping, such a change has not yet materialized. Similar downward revisions have been announced concurrently on previous occasions, but it is stated that present discounts remain unchanged, as follows:

PIPE FITTINGS—	Per cent.
Cast iron fittings	25
Plugs, cast iron	28
Do., solid	28
Do., countersink	28
Bushings, mall.	28
Do., cast	28
Unions, ¼ in. to 2 in.	45
Do., 8 in., 2¼ to 4 in.	45
Flanged unions	25
Dart unions, blk., ¼ to 2 in.	33½
Do., ⅛ in., 2¼ to 4 in.	23
Do., galvd., add to black	30
Nipples, blk., and galvd. ⅛ to 4 in. close and short	50
Do., 4½ in. and larger	40
Do., long, ⅛ in. to 4 in.	60
Do., 4½ in. and larger	50
Do., running thread	30
Couplings, 4 in. and under	30
Do., 4½ in. and larger	10

MALLEABLE FITTINGS—	Black	Galvanized
Class A	0 54	0 67
Class B	0 22	0 32
Class C	0 14	0 22

TONE IN COPPER PRODUCTS RETAINS FIRMNESS

Toronto.

The market on copper and brass products is at present quiet, after the price advances recently recorded, but the current inactivity is more or less expected at this season of the year. The undertone of the copper market continues fairly firm, and the trend of raw materials of this nature is being well maintained. Quotations on copper and brass tubing, rods and sheets, remain at the new higher levels as follows:

BRASS—	
Sheets base, per lb.	$ 0 23
Rods, base, per lb.	0 21
Tubing, base, per lb.	0 25
COPPER —	
Rods, base, per lb.	0 28
Soft sheets, plain, 1 oz. and heavier, lb.	0 30
Do., plain tinned, 16 oz. and heavier, lb.	0 37
Do., polished and tinned, 16 oz. and heavier, lb.	0 42
Tubing	0 29

PRICE RECESSIONS NOTED ON RADIATORS AND BOILERS

Toronto.

Through increasing the discount quotations, the prevailing price levels on both radiators and boilers now register a more or less substantial decline. The average reduction of radiators is approximately 13 per cent., while the change on water and steam boilers is in the nieghbourhood of 10 per cent.

This revision to lower levels was generally anticipated as price shading in these products has been reported. The new levels are effective from January 1, 1922, it having been announced in recent market reports that the previous discounts would remain in effect for the balance of 1921. Following are the current changes.

RADIATORS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60.

Discount on 2, 3, 4 and 5-column standard sizes, 59 per cent. for water and 60 per cent. for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 51 per cent. for water and 52 per cent. for steam.

Discounts on 1-column hospital size, water 33 per cent.; steam 34 per cent.

Wall radiators—5 ft. $1.15; 6 ft. $1.10; 7 ft. $1.05; 9 ft., $1.05; 12 ft., $1.05. Discount 56 per cent.

BOILERS—

Water:

Round 64 per cent. off list. Square 15 per cent. off list.

Steam:

Round, 28 per cent. off list; square, 15 per cent. off list.

ENAMELLED WARE PRICES AT RECENT REVISIONS

Toronto.

Quotations on enamelled ware are remaining at the recently revised lower levels, with current trade of a moderate nature. There is still some interior re-modelling proceeding in building circles, however, but the holiday season has modified the prevailing trend of activity.

Following are the current quotations:

ENAMELLED WARE—	
Enamelled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.	51 40
Do., 5½ ft.	57 10
Lavatories—	
17x10" Apron F139 or P4045	15 30
18x24" Apron F154 or P3845 or P3847	23 60
18x21" Apron F169 or P4205	17 60
18 x 21" Roll Rim, F197, F199 or P4655-6	15 40
17 x 19" Roll Rim, F241 or P4345	12 60
Sinks, Roll Rim, 16x24 in.	18 10
Do., 18 x 30 in.	23 00
Do., 20 x 30 in.	24 70

Sinks, Flat Rim—	1 only	2 only	3 only
16 x 24	$7 60	$7 70	$7 80
18 x 30	8 50	8 60	8 70
20 x 30	9 70	9 80	9 90

Above prices list, less 33 1-3 per cent.

All steel enamel baths, 4 and 4½ ft.	$14 00
Do., 5 ft.	15 00
Do., 5½ ft.	16 75

These quotations are net.

SOLDERS MAINTAIN RECENT HIGHER QUOTATIONS

Toronto

Quotations on solders and other lead and zinc goods are holding at the recently higher levels, while both manufacturers and distributors report that a fairly firm tone prevails in these markets. Current business has slightly receded in volume, but this is attributed to the holiday season and inventory period. Unchanged prices are as follows:

LEAD AND ZINC GOODS—	
Lead, pipe, list, per lb.	0 12½
Lead, waste pipe, list, per lb.	0 13½
Do., over 8 in., list, per lb.	0 14½
Lead pipe is subject to a discount of 10 per cent.	
Lead traps and bends,	10 per cent.
Lead sheets, 4 to 6 lbs., sq. ft. in rolls, lb	0 09½
Cut sheets, ½c to ¾c lb. extra and cut sheets to size, 1c lb. extra.	
Solder wire, per lb.	0 32½
Do., commercial, lb.	0 22½
Do., strictly, lb.	0 24½
Do., guaranteed, lb.	0 27½
Do., wiping, lb.	0 22½
Zinc sheets, per lb.	0 12

(Continued on page 32)

MADE
IN CANADA

MALLEABLE AND CAST IRON PIPE FITTINGS

Annual Capacity
6000 Tons

Quality Products

Prompt Service

M Brand Pipe Fittings, Screwed or Flanged, Black or Galvanized.

We are equipped to make the general run of malleable and grey iron castings for machinery manufacturers, agricultural implements, automobiles and specialties.

Cast Iron Fittings

stamped with our trade-mark mean fittings made with iron of high tensile strength — proper proportions and correct tappings.

RECESSED DRAINAGE FITTINGS

Malleable Fittings

of our brand mean fittings made of *Air Furnace Refined Iron,* reamed and tapped to gauge with perfect threads.

A trial of our pipe fittings will prove the quality of service they give.

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Montreal and Toronto—From Head Office, Guelph, Ont.

TORONTO MARKETS

(Continued from page 30)

BOILER TUBE MARKETS CONTINUE QUIET

Toronto.

The boiler tube market continues of a quiet nature, with very little variation in current demand. Quotations also remain unchanged. Dealers report the usual inactive period at this season of the year, with a better outlook for some improvement in the Spring months. Following are the prevailing nominal prices:

BOILER TUBES—	Seamless	Lapweld
[illegible] inch	26 00	.....
1¼ inch	27 25	.....
1" inch	26 25	.....
1¾ inch	29 75	25 00
2 inch	28 00	22 00
2¼ inch	32 00	25 00
2½ inch	40 00	27 00
[illegible] inch	44 00	35 00
3½ inch	60 00	40 00
[illegible] inch	75 00	50 25

IRON AND STEEL MARKETS AT FAIR LEVELS

Toronto

Quotations on bar iron and steel are generally being maintained at the nominal lists recently effective. A few minor instances are reported, however, where some slightly easier prices have been given. This condition is stated as applying solely to old sizes and exceptional circumstances, with no general tendency in this direction. The same condition is evident in other domestic markets. The basis market quotations are noted to be on fairly steady levels, at the present time, with conditions in the industry generally reported as favorable for the current season. The structural and bar iron markets are described as waiting the impetus expected from new business in the early months of the year. Following are the average local market prices on bar iron and steel.

IRON AND STEEL		
Mild steel bars, base	3 00	3 25
Mild steel bands, 3-16 in. base	3 50	3 75
Bar iron, base	3 00	3 25
Angle iron, base	3 10	3 35
Horseshoe iron	3 75	4 10
Tire steel	3 50	3 75
Spring steel	5 50	6 00
Crucible cast sheet steel	30 00	35 00
Mining drill steel	.....	18 50
Cast tool steel, medium	20 00	23 00
Cast tool steel, high grade	30 00	36 00
Sleigh shoe steel	3 00	3 25
Norway iron	12 50	15 00
Toe calk iron	4 00	4 50
Hoop steel	3 75	4 25

STILL WAIT REVISION IN SOIL PIPE MARKETS

Toronto

"Eastern markets are meeting American soil pipe competition and in order to do so have been forced to quote prices which are below factory costs," stated a prominent manufacturer of soil pipe and fittings when discussing the present market situation on these products with Sanitary Engineer. "The recent downward revision in Montreal was made to meet foreign competition, and as a consequence some manufacturers are selling their product cheaper than they can afford to do." The primary reason for the wide difference which has recently appeared in quotations between the two chief distributing centres for soil pipe in Canada, is as quoted above, coupled with the advantage of some easier labor costs. This latter factor is described as an important element in foreign markets at this time. In spite of the abnormal conditions apparent in the industry, no settlement has yet been made, and the various quotations are unchanged. Local prices have not been revised, and the nominal list still remains in effect. The fact that Montreal quotations continue to show the new discount levels, has given rise to the impression that a change may not develop until the new year. Whether the revision will be of an upward nature in the East, or of a downward nature locally in order to conform with other markets, is difficult to ascertain. No prediction could be secured for the future, but another distributor was of the opinion that if Montreal markets adhere to their present levels, the local quotations may be gradually expected to meet their competition.

The current local nominal lists are as follows:

SOIL PIPE—	
2 inch	25 per cent.
3 inch	30 per cent.
4 inch	30 per cent.
5 and 6 inch	30 per cent.
8 inch	net
FITTINGS—	
2 to 6 inch	40-10 per cent
8 inch	Net

TIN PLATE PRICES AT RECENT NEW LEVELS

Toronto

The recent brisk demand evident in the primary tin plate markets has been responsible for a corresponding increase in the volume of production. Some shading of quotations, however, is again reported from southern mill centres, this development being attributed to independent producers offering concessions in order to obtain a large ratio of business. In the local markets the quotations on coke tin plates are generally being maintained at the revised lower levels recently recorded. The nominal price level on Canada plates, however, is described as being subject to easier quotations on attractive orders, should they appear. Following are the current lists;

PLATES, CANADA—	Per box
Dull, 60 sheets	5 65
Ordinary, 52 sheets	5 60
PLATES, COKE TIN—	
IC, 20 x 28, 112 sheets	13 50
IX, 20 x 28, 112 sheets	16 50
IX, 20 x 28, 56 sheets	9 00
PLATES, CHARCOAL TIN —	
IX, 20 x 28, 112 sheets	14 00
1XX, 20 x 28, 56 sheets	16 00
PLATES, TERNE—	
IC, 14 x 20, 112 sheets	12 00

SEASONAL RECESSION IN DEMAND FOR SHEETS

Toronto

The recent lowerings in the base quotations on blue annealed, black and galvanized sheets, are stated as resulting from the slackening demand at this season of the year, coupled with certain efforts in southern producing centers to maintain a fair proportion of mill operation in order to distribute production costs. Railroad buying has recently been the strong feautre in the sheet markets, but the latter part of December registered a falling off in volume. The steel requirements in many branches of trade are generally expected to revive in the early months of the New Year. Distributors point out that the usual winter dullness is expected to characterize the market during the next few weeks. Following are the average nominal quotations apparent on current markets;

BLUE ANNEALED—		
10 gauge, base	3 75	4 50
12 gauge	3 80	4 55
14 gauge	3 85	4 60
16 gauge	3 90	4 65
BLACK—		
18-20 gauge	4 30	5 05
22-24 gauge	4 35	5 10
26 gauge	4 40	5 15
28 gauge	4 50	5 25

Charge of 25c. per 100 lbs., is made for less than case lots. An extra 10c per 100 lbs. is also charged on sheets 26 in. wide.

GALVANIZED—	Queen's Head.	Fleur-de-lis.
28 gauge	8 25	7 75
26 gauge	8 00	7 50
24 gauge	7 60	7 10
22 gauge	7 25	6 75
18 and 20 gauge	7 10	6 60
Premier and Apollo—		
10¾ oz.	6 25	7 00
U. S. 28, base	5 85	6 60
U. S. 26	5 55	6 30
22 and 24	5 40	6 15
18 and 20	5 25	6 00
16	5 10	5 85
12 and 14	4 95	5 70

An extra is now charged on galvanized sheets, 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20 cents per 100 pounds. Other gauges show no change for different widths.

An extra 40 cents per 100 lbs., is charged for Keystone and Premier brands copper-bearing sheets.

CURRENT TRADE QUIET IN RANGE BOILER MARKET

Toronto

There is little variation to report in the range boiler situation. Some shading of the nominal price list is still being recorded, but current business in these products continues of a minor nature at this season. Local distributors still claim to be maintaining the level of $9.25 on the 30-gallon standard size, but this quotation has been lowered to $9.00 in some quarters, while another list commencing with $8.75 is now being generally recognized in other centres.

The recent reductions in sheet prices, places raw material costs on a slightly lower basis, but manufacturers point out that other production expenses have registered very little, if any, variation. Whether the new lower list will be nominally recognized in the near future, is stated as depending upon the general trend of the markets and future developments in basic elements.

HOLIDAY DULLNESS EVIDENT IN METAL MARKETS

Toronto.

The current metal markets show very little change, with the holiday season contributing to the general inactivity. Prices also record little variation, both primary and domestic quotations generally holding at the previous levels.

(Continued on page 34)

Grinnell Uses Jenkins

Here we show you the big manufacturing plant of the Grinnell Company at Toronto.

The home of the well-known Grinnell Sprinkler Systems its equipment must of necessity be dependable and efficient in every respect. And because so much depends upon reliable and trouble free valve installations Jenkins Diamond Marked Valves were selected by the Grinnell people in preference to any other make.

THE GRINNELL COMPANY'S PLANT, TORONTO, ONT.

Fig. 106

Jenkins Valves are made in types and sizes to meet every requirement of plumbing, heating and power plant service. Catalog No. 8 shows the complete line.

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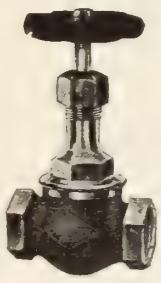

Fig. 300

UBEL SEMI-ROTARY PUMPS

Standardization of parts is a feature of these pumps, guaranteeing interchangeability when necessary. This, combined with the looked-for accuracy and finish of the UBEL product, accounts for the fact that they enjoy an ever-increasing popularity and widespread demand.

Write for Catalogue Section 'P, which deals fully with UBEL Semi-Rotary and General Hand Pumps.

The accompanying illustration shows our Fig. P 1 Semi-Rotary Double-Acting Pump. We can give prompt shipment of all sizes, from ½ in. to 3 in. inclusive.

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UBEL

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For the convenience of the Canadian Trade well-assorted stocks are carried by our Canadian agents.

W. H. Cunningham & Hill Limited

269 West Richmond Street, Toronto, Ont.

TORONTO MARKETS

Continued from page 32)

COPPER—Buying of copper in domestic markets during the last few days is reported to be light. Continued purchasing of copper by foreign interests for export abroad, has been the chief feature of this metal. Primary markets report that domestic consumers have already covered requirements for the next month or two, consequently current business is light, with no pressure to sell on the part of producers. Prices have been almost steady, with the local quotations between 17½ and 18 cents.

TIN—The tin market is described as holding very well, but the demand is undoubtedly listless. Recent arrivals on the primary markets have increased the available supply and it can no longer be said that there is any scarcity. The fluctuations in Sterling exchange have caused slight variations in tin quotations, but the general price trend remains firm at the recent higher levels. The quotation of 39 cents is still in effect locally.

LEAD—One feature of the lead markets at the present time is the report from southern centres that foreign prices continue to interest as affecting the anticipated possibility of exporting lead to Europe. While inquiries have been in evidence, these have not yet developed into actual business.

The price level is described as steady, with the domestic market unchanged. Local quotations remain at $6.75.

SPELTER—The holiday dullness is particularly apparent in this market, and both offerings and sales have been of a minor character. Prices are nominally unchanged, the local quotation generally holding to $7.25.

ANTIMONY—The current demand for antimony remains of a quiet nature, and there is little new to report in these markets. Between 8 and 10 cents remains the average local quotation.

ALUMINUM—The inactivity in the automobile industry at this season of the year has contributed to the dullness in aluminum circles. With an improvement in automobile production, an increased demand for aluminum is looked for, but the present trend is very quiet. Prices locally are at the 27 cent level.

WINNIPEG MARKETS

WINNIPEG, December 30.—A new lower list on wrought piping, coupled with reduced prices on enamelled ware and a slight downward revision in quotations on range boilers, supply the feature market developments in plumbing and steam-fitting supplies. Other sanitary products generally remain unchanged, with little variation to record in basic conditions. During the current season, a recession has been noted in the volume of trade for such materials as conductor pipe, eavestrough and corrugated sheets. There has also been a slackening in the prevailing demand for galvanized and black sheets. Present business is described as quiet, this condition being usually evident at this period of the year.

LITTLE VARIATION IN SOIL PIPE AND FITTINGS

Winnipeg.

No farther change has developed in the market for soil pipe and fittings for several weeks. Prevailing prices remain steady on the local market. Following are the current quotations:

SOIL PIPE
2 and 3 inch, 20 per cent. off.
4 inch, 25 per cent. off.
5 and 6 inch, 25 per cent. off.
8 inch, 10 per cent. advance.

FITTINGS
2 and 3 inch, 40 per cent. off.
4, 5 and 6 inch, 45 per cent. off.
8 inch, 10 per cent. advance.

DOWNWARD PRICE REVISION ON RANGE BOILERS

Winnipeg.

A slight downward revision has been announced in the prices on range boilers; more particularly the 30 gal. size. Following are the present new quotations:

RANGE BOILERS

20 gallons, each	9 00
25 gallons, each	13 25
30 gallons, each	16 25
35 gallons, each	29 45
40 gallons, each	33 15
50 gallons, each	62 50
60 gallons, each	62 50
120 gallons, each	75 00

QUIET SEASON FOR PIPE AND EAVESTROUGH

Winnipeg.

Owing to this particular season of the year sales of conductor pipe and eavestrough are falling off. The recent quotations are remaining in effect as follows:

CONDUCTOR PIPE—
Round or Corrugated—2 in., $6.69 per 100 ft.; 3 in., $7.70; 4 in., $9.72; 5 in., $13.77.
EAVESTROUGH—
O. G. Sq. Bead—8 inch, $5.40 per 100 feet; 10 in., $6.08; 12 in., $7.29; 15 in., $13.10.

SLACKENING IN DEMAND FOR SHEETS AND PLATES

Winnipeg

The demand for sheets and plates slackened off very much as the close of the year approached. There prevails a lot of optimism, however, that with the New Year things will probably pick up and a larger sale of sheets is looked forward to. Prices remain firm and no indication of any change is in view. Following are the present prices:

SHEETS—
Black—10 ga, $5.70 per 100 lbs.; 12 ga., $5.70; 14 ga., $5.80; 16 ga., $5.90; 18 and 20 ga., $6.30; 22 and 24 ga., $6.35; 26 ga., $6.40; 28 ga., ..6.65.
Galvanized—16 ga., $6.75 per 100 lbs.; 18 and 20 ga., $6.90; 22 and 24 ga., $7.05; 26 ga., $7.20; 28 ga., $5.80; 10¾ oz., $8.20.

REDUCTION ANNOUNCED ON ENAMELLED WARE

Winnipeg.

A reduction of approximately 20 per cent. has been announced in quotations on enamelled ware. This change reflects on all products such as baths, sinks and lavatories. The new lower prices reflect the trend of these markets, now that stocks of high-priced materials have been satisfactorily reduced.

NEW LOWER LIST ISSUED ON WROUGHT PIPING

Winnipeg.

A new pipe list has now been issued which reduces quotations on wrought piping approximately 8 per cent. The revised list, No. 54, was not available at the time of going to press, but the lower quotations are effective at once.

WATERWORKS, SEWERAGE AND ROADWAYS

Burgessville, Ont.

Construction of tile drainage system is contemplated by North Norwich Twp. Council. C. E. Burgess, secy-treas., Burgessville, Ont.

Fairground, Ont.

Plans will be prepared for drainage system for Houghton Twp. Council. W. V. Stevenson, clerk, Fairground.

Ottawa, Ont.

W. E. Noffke, architect, Central Chambers, will prepare plans for public lavatories for City.

Ottawa, Ont.

City Council will construct watermains on various streets at estimated cost of $42,325. A. F. McCallum, Commr. of Works.

St. Catharines, Ont.

City Council plan construction of sanitary sewers on Ravine and Thorold Rds., Lincoln Ave., and Warren and Capner Sts. W. P. Near, Engr.

CONTRACTS AWARDED

Dunnville, Ont.

General contract for sewers costing $8,810 for Town is placed with Webster Construction Co., Ltd., Bank of Toronto Bldg., London. Frank Barber & Associates, Ltd., Engrs., Jarvis St., Toronto.

London, Ont.

Ohio Well Digging Co., Massilon, Ohio, will construct wells for waterworks for City.

Montreal, Que.—City Council awarded general contract for construction of sewer at cost of $8,643 on Coronation St., from Terrebonne to Sherbrooke St., to A. Di Cesar & Cie, 885 St, Catherine St. East.

Montreal, Que.—General contract for construction of sewer costing $5,770 on Berri St, Blvd. Gouin to St. Denis St., for city is awarded to C. Perluzzi, 26 Sevignac Lane.

Prince Rupert, B. C.—Plumbing contracts for court house for Prov. Govt. are awarded to Steel & Longfield, Prince Rupert, B. C.

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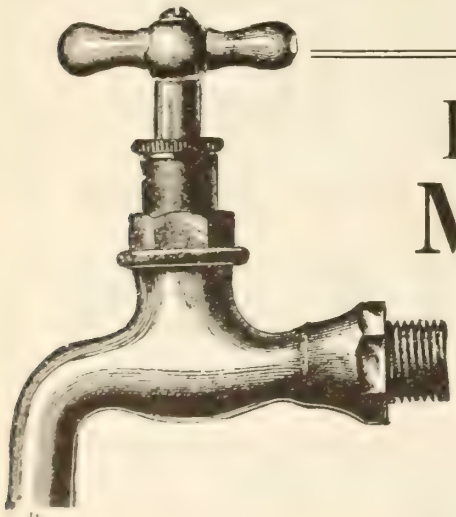

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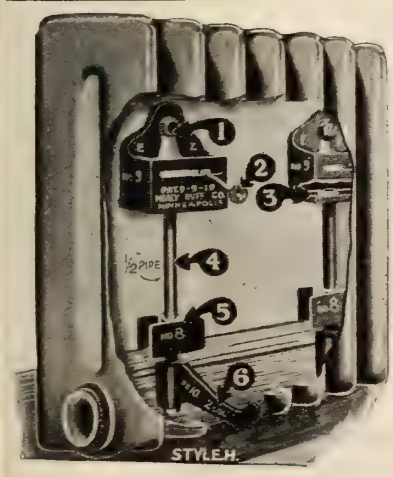

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Port Hope Sanitary Mfg. Co., Ltd., Port Hope.
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Port Hope Sanitary Mfg. Co., Ltd., Port Hope.

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Beaton & Corbin Mfg. Co., Southington, Conn
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Empire Mfg. Co., London and Toronto.
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Steel & Radiation. Ltd., Toronto.
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Empire Mfg. Co., London and Toronto.
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Porcelain Products Ltd., Toronto.

PUMPS
Atlas Engineering Co., Ltd., Toronto.
W. H. Cunningham & Hill, Ltd., Toronto.
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Steel & Radiation Ltd., Toronto.
Warden King Ltd., Montreal.

RADIATOR NIPPLES
Fittings Limited, Oshawa.

RADIATOR TRAPS (STEAM)
C. A. Dunham Co., Ltd., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.

RIVETS
Fittings Limited, Oshawa.

RANGE BOILERS
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C. A. Dunham Co., Ltd., Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.

ROOF FLANGES AND FLASHINGS
Canada Metal Co., Ltd., Toronto.
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STEAM TRAPS
Atlas Engineering Co., Ltd., Toronto.
C. A. Dunham Co., Ltd., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.

STOVES
Gurney Foundry Co., Limited, Toronto.

STOVES, GAS AND COAL
Gurney Foundry Co., Ltd., Toronto.

SMOKE TEST MACHINES
James Morrison Brass Mfg. Co., Toronto.

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TANKS, STEEL
Atlas Tank Works, Toronto.
The Canadian John Wood Mfg. Co., Toronto.

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W. H. Cunningham & Hill, Ltd., Toronto.

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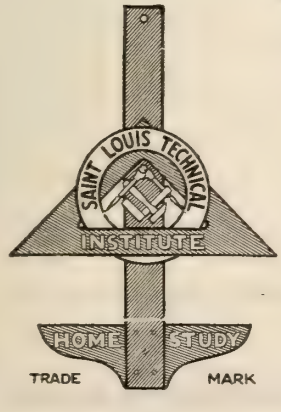

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Probably you found them by their fixed habit of returning to the same place for water at every dawn and dusk, day after day. That's a pretty natural way of finding deer, by going where deer are sure to be.

Twice a month, practically everybody in Canada that is interested in the plumbing and heating trade, goes to Sanitary Engineer in search of the business items, markets and advertising where they find the latest news and newest goods offered in the Canadian plumbing market.

There, twice a month, you can find and reach practically the whole plumbing and heating trade of Canada. It's a good time and place to tell them about your house and product. A full page weekly costs slightly over half a cent for each subscriber reached!

There is no obligation, no expense attached, in sending for a representative. He will explain this service and point out its advantages to you.

Sanitary Engineer

Plumber and Steamfitter of Canada

143-153 University Avenue,

TORONTO, Canada.

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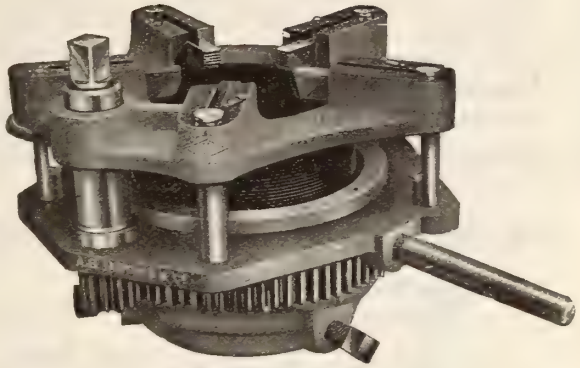

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No. 2½. Capacity 2½ to 6 in. inclusive
Weight 120 lbs.

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Pipe Threading Tools

Range ⅛" to 12"—All sizes threaded at one cut
Effective tools in which the dies open out, as the tool advances on the thread, so that the proper taper is made. This relieves friction on the pipe and conserves every ounce of power for cutting. The dies cut only with the cutter mouth.
Beautifully designed machines in which there are no complicated contrivances to get out of order and make trouble, they work so easily, smoothly, rapidly and accurately.

One man does the work of two

A. B. Jardine & Company, Limited, are the sole makers of "Jardine" Pipe Threading Tools and the sole licensees to make and sell "Toledo" Tools in Canada.

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Suitable for the approaching period of building activity, road construction, etc. This is a line of great importance in making successful, profitable contracts. Our C. T. Brand of Wrought Pipe has been

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by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes ⅛-in. to 4-in. Black or Galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your Jobber for C. T. Brand Wrought Pipe

Canadian Tube and Steel Products Co., Ltd.

Operating Canadian Tube and Iron Co., Limited
Works at Lachine Canal, Montreal

CAN BE PUT IN ANY ROOM

PROFITS IN COUNTRY TRADE

This advertisement is of interest to you if you number amongst your customers people who do not have the advantages of city conveniences.

TWEED ENAMELLED STEEL BATHS

—made of galvanized steel, enamelled, and installed without plumbing—give country folk the advantages of a modern bathroom at a very small cost.

Write us for price lists and further particulars about these baths, the "Tweed" Sanitary Closet and other home conveniences.

THE STEEL TROUGH AND MACHINE CO. LIMITED
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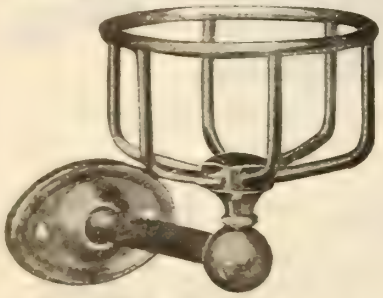

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Towel Bars
Soap Dishes
Paper Holders
Glass Shelves
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THE GENDRON MFG. CO. Ltd., TORONTO

Superior Plain

Closet Bend

The advantages of this fitting appeal to every thinking engineer. It is absolutely tight, no more floor seepage, permanent and at the same time easily removable for repair or replacement of bowl, widest range of adjustable flange and fits any make of closet. Made in 18 in. lengths, plain or tapped on both sides. Ask your jobber for the K.T. Closet Bend. Plain or Tapped.

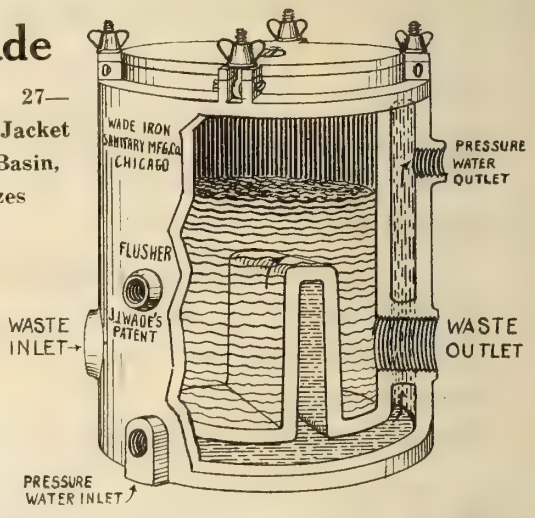
Bull Dog
Brand
Seats & Tanks

Strongly made of superior materials, and thoroughly proof against warping, opening, etc. Investigate the Bull Dog line of products.

HOURD & CO., LIMITED
London, Canada.

Wade

B. Fig. 27—Water Jacket Grease Basin, Four Sizes



Water Jacket Grease Basin

Water Jacket Grease Trap pays for itself and installations in hotels and restaurants in short time. Grease is skimmed off and soap is made. Stops all clogging at waste pipes.

A fixture that you can guarantee to meet all sanitary requirements.

Write for Catalog "B"

WADE IRON SANITARY MFG. CO.
551 W. Fulton Street, Chicago, Illinois

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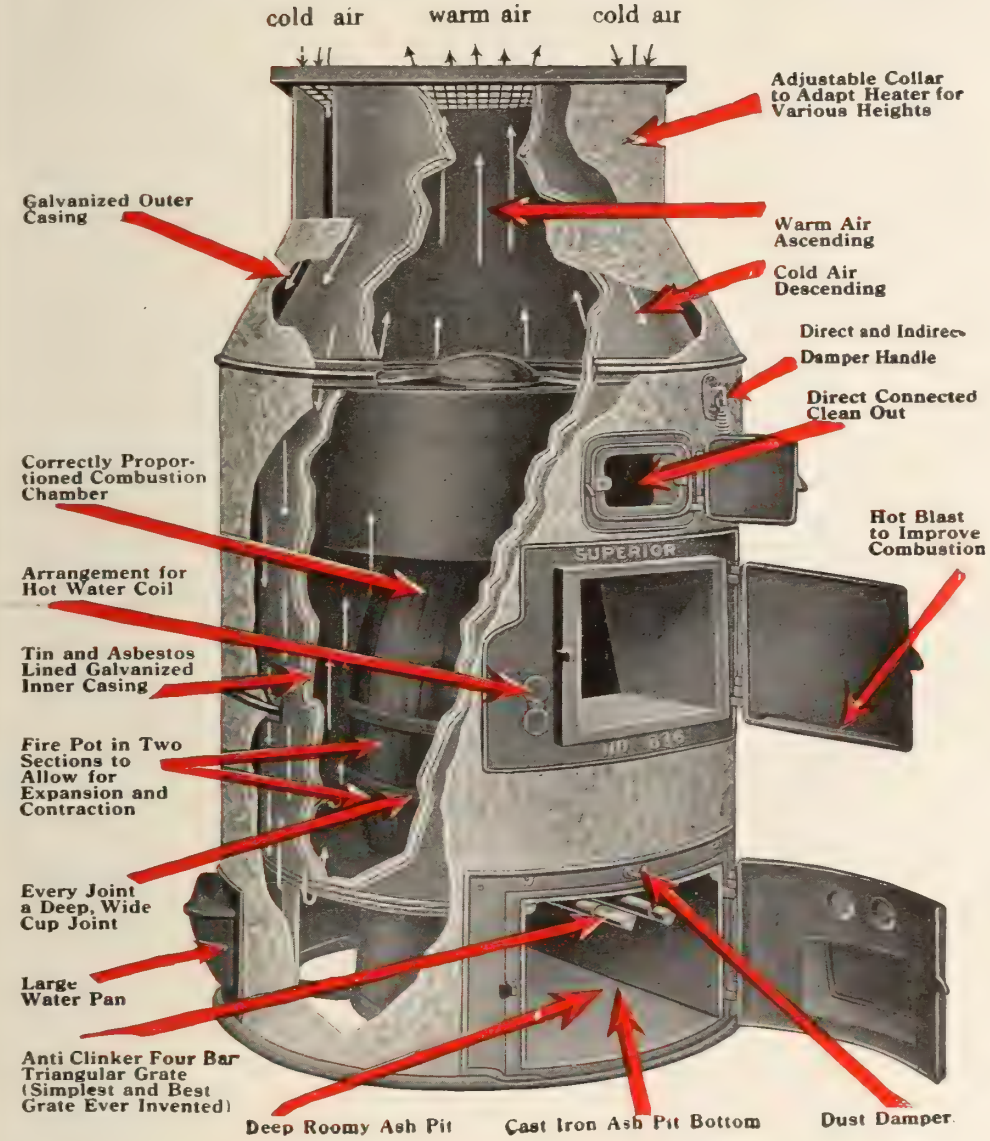
Heat by the Shortest Route

The "PILOT" Superior Pipeless Furnace


cold air
warm air
cold air
Adjustable Collar to Adapt Heater for Various Heights
Galvanized Outer Casing
Warm Air Ascending
Cold Air Descending
Direct and Indirect
Damper Handle
Direct Connected Clean Out
Correctly Proportioned Combustion Chamber
Hot Blast to Improve Combustion
Arrangement for Hot Water Coil
Tin and Asbestos Lined Galvanized Inner Casing
Fire Pot in Two Sections to Allow for Expansion and Contraction
Every Joint a Deep, Wide Cup Joint
Large Water Pan
Anti Clinker Four Bar Triangular Grate (Simplest and Best Grate Ever Invented)
Deep Roomy Ash Pit
Cast Iron Ash Pit Bottom
Dust Damper
SUPERIOR

To the Dealer:-

The Pilot Superior is the leading Pipeless furnace on the market. It was conceived before other pipeless furnaces were made in Canada and our pioneer experience in this field enables us to place in the hands of the trade the most efficient and economical heating apparatus built. Note the red arrows shown in the illustration which describe the features of this furnace.

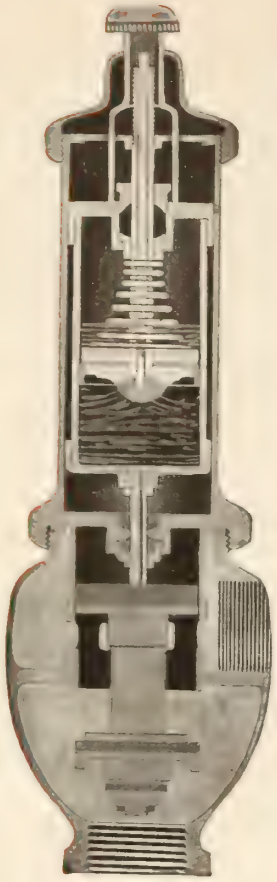
Dealers are making handsome profits handling the Pilot Superior. It is easy to sell. One installation sells another and good businesses are being built through them all over Canada.

The Hall Zryd Foundry Company, Limited

Manufacturer of Pilot Stoves, Ranges and Furnaces

Western Branch: Post Office Box 687 Winnipeg, Manitoba

Hespeler Ontario



Sectional View
Of
PerfectO Flush Valve

showing the oil-chamber with the working parts completely cut off from contact with the water. The flow of water may be easily and quickly regulated to suit varying requirements.

Write for Catalogue

Why an Oil-Controlled Valve?

WHAT IS the logical medium for regulating a flush valve? Water? Water often contains impurities that obstruct the by-pass and interfere with the smooth working of the valve.

Oil! There is the answer. PerfectO Flush Valves are Oil-Regulated. Water can't cause any trouble—because no water can get into the by-pass—nothing but high-grade mineral oil.

This oil is contained in a sealed, cast-brass chamber. It cannot escape or evaporate and never needs replacing. Its density is unchanging—hence the action of the valve, once it is adjusted, does not vary. PerfectO Flush Valves are Oil-Controlled because an oil-controlled valve gives better service for a longer time. And that's why there is genuine satisfaction ahead when you install PerfectO Oil-Regulated Flush Valves.

GALT BRASS CO., LIMITED
GALT, CANADA

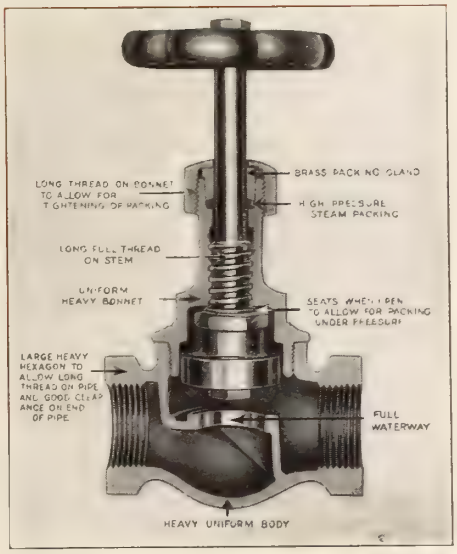
PERFECTO
OIL REGULATED
FLUSH VALVE

Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XVI. PUBLICATION OFFICE, TORONTO, JANUARY 15, 1922 No. 2

The "Emco" Disc Valve


LONG THREAD ON BONNET TO ALLOW FOR TIGHTENING OF PACKING
BRASS PACKING GLAND
HIGH PRESSURE STEAM PACKING
LONG FULL THREAD ON STEM
UNIFORM HEAVY BONNET
SEATS WHEN OPEN TO ALLOW FOR PACKING UNDER PRESSURE
LARGE HEAVY HEXAGON TO ALLOW LONG THREAD ON PIPE AND GOOD CLEARANCE ON END OF PIPE
FULL WATERWAY
HEAVY UNIFORM BODY

A 840

Gives Perfect Service Under Constant Pressure

The Valve that is fitted with special high heat-resisting "Radium" discs which last a lifetime.

It is registered in all provinces of the Dominion and is approved by inspectors of steam boilers for a pressure of 175 lbs.

When buying specify our lines. They are carried in stock by the larger and more progressive jobbers in Canada.

"Cut waste into halves with 'Emco' Valves."

Empire Brass Manufacturing Co. Limited

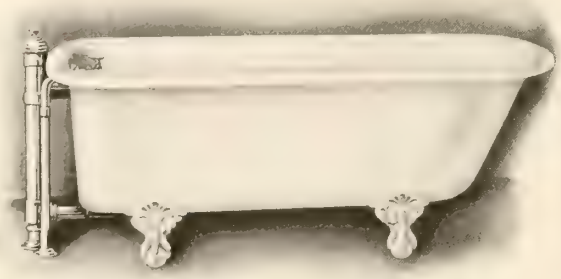
LONDON AND TORONTO - CANADA

Beaver Brand

Porcelain Enameled Ware

The beautiful, attractive appearance of Beaver Brand Fixtures is attained, by means that add materially to the durability and service of the ware.

The beauty serves a useful purpose in assisting the plumber to make sales and installations with greater ease and speed.



"Shamrock" Porcelain Enameled Bath

Amherst Foundry Co., Limited

General Offices and Factory: Amherst, N.S.

AGENTS

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71 Brown St., Toronto.

Manitoba & Northwest
E. B. Plewes,
197 Princess St., Winnipeg.

SPECIFY CANADIAN SOLID VITREOUS TANKS

The "Bellemeade"

BEAUTY, refinement and attractiveness are combined with the practical usefulness, the permanent durability and the outstanding sanitary characteristics of every Canadian Solid Vitreous closet tank. Each tank is one solid piece of this dense all-clay ware produced from very, very finely ground clays and rocks, selected and blended according to an exacting formula, moulded most carefully, glazed inside as well as out and burned twice under very intense heat.

There are no seams or joints to open up; no lining to corrode or leak; no paint, varnish, enamel or other coating to discolor, chip or wear off; no material to rot, warp, split or deteriorate.

The surface is a live-white lustrous glaze which can as easily be kept clean as a china tea-plate.

It is absolutely non-absorbent; is of substantial weight; its inherent strength ensures a life-time of wear, while its clean sanitary surface ensures the same attractive lustrous appearance after years of use.

When fitted with high-grade Canadian-made fittings, this tank should give the utmost of satisfactory service.

Made in two sizes: The No. 503 especially adapted for all syphon-action and reverse trap closets; the No. 501 somewhat larger for syphon jets.

CANADIAN POTTERIES
LIMITED

SAINT JOHNS
QUEBEC

Sales handled exclusively through recognized jobbers of plumbing supplies

Look!

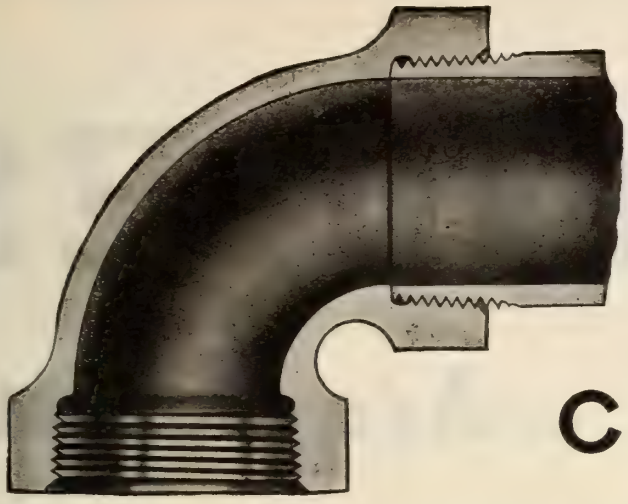
We Must Show the Public WHY

DISPLAY your brass goods and let people know what you have to sell. Let your displays be instructive; we must show people why the bathroom should receive as much thought as the living room, why the pantry sink should be as efficiently outfitted and equipped for its purpose as a business office is for its use.

Every display, show-card or advertisement that educates the public to a proper appreciation of plumbing goods helps the whole industry.

Canadian Brass Company Limited

Galt Toronto



CRANE

DRAINAGE FITTINGS

ARE MADE WITH A SHOULDER AND ARE THE SAME INSIDE DIAMETER AS WROUGHT PIPE.

THE PIPE SCREWS IN UP TO THE SHOULDER MAKING A CONTINUOUS PASSAGE, LEAVING NO POCKETS IN WHICH SOLID MATTER CAN LODGE.

We recommend the use of our drainage fittings for Vacuum Cleaning installations. Fittings that are ordinarily tapped pitched for drainage work can be furnished without pitch to order.

All drainage fittings are recessed to allow easy entrance of the pipe.

Manufacturers of Valves, Fittings and Piping Equipment and Distributors of Pipe, Plumbing and Heating Supplies.

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LIMITED
HEAD OFFICE & WORKS
1280 ST. PATRICK STREET
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CRANE-BENNETT
Limited
Head Office and Warehouse:
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Sales Offices:
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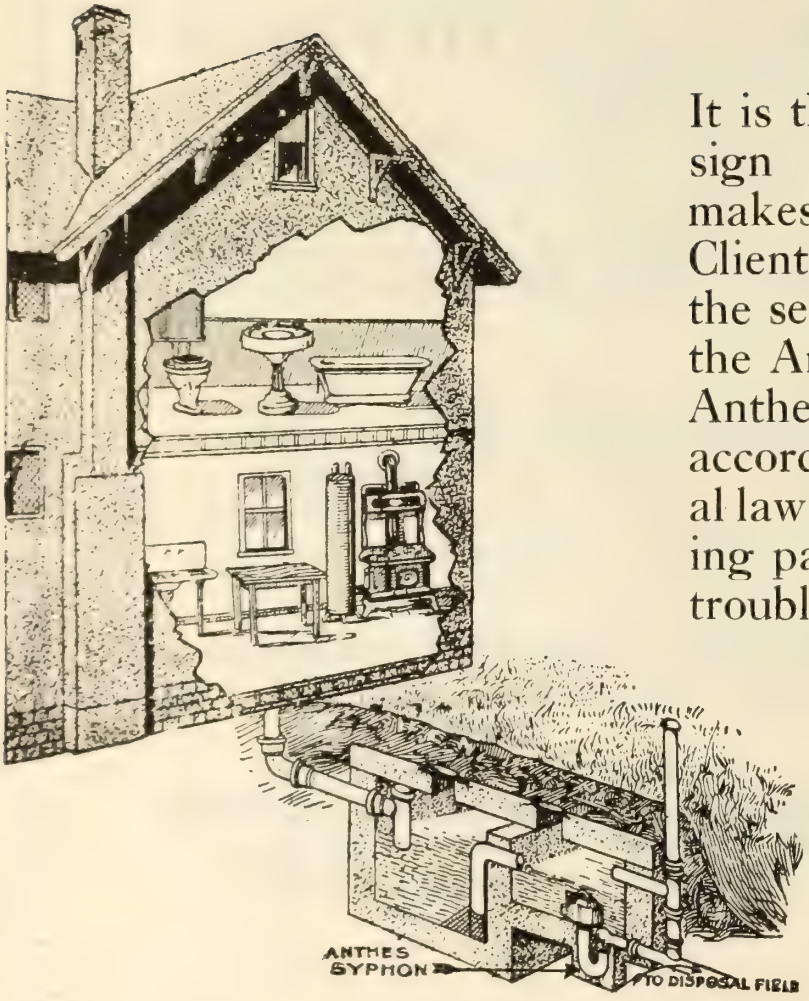
43

ANTHES

Are Built On



It is this soundness of design and principle that makes them so well liked. Clients are delighted with the service they get from the Anthes Syphon in use. Anthes Syphons operate according to purely natural laws. There are no moving parts to stick or cause trouble.

Anthes

Toronto

Manufacturers of Cast

SYPHONS

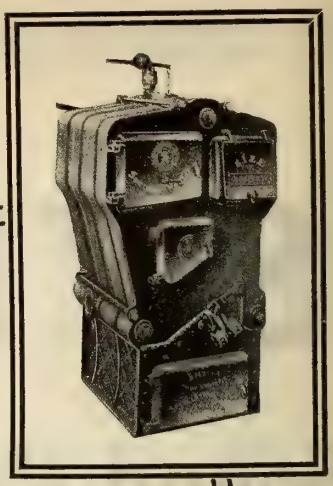
Sound Principles

Anthes Syphons are seamless and made in one piece. Their construction makes them very easy and simple to install. We also make superior cast iron Soil Pipe and Fittings. When you specify, specify Anthes Soil Pipe and Fittings.

Foundry
Limited
Winnipeg

Iron Soil Pipe and Fittings

THE Spencer

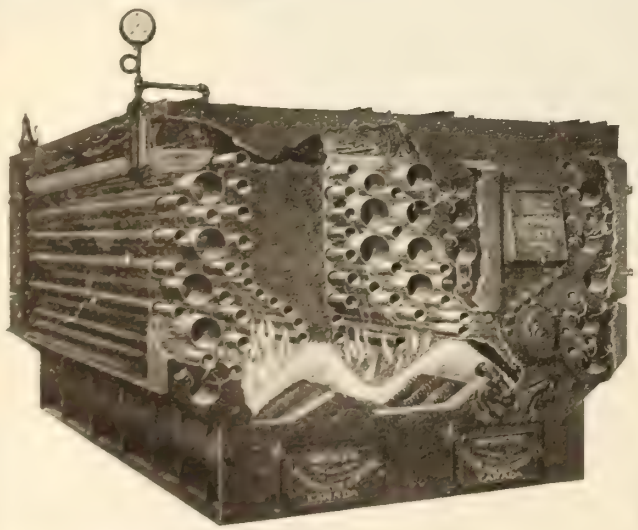


Burns No. 1 Buckwheat Coal

When an owner positively saves from $3 to $5 on every ton of coal used, he can reasonably be expected to boost the equipment that makes it possible. That is why Spencer owners are Spencer boosters. Users that boost the product you install for them assure you future sales.

There is a Spencer to suit every requirement. The fact that thousands are now in operation in all parts of North America shows you that there is good business for you.

The Spencer burns cheaper grades of coal as well as the expensive kinds—a convincing point in closing sales. Write to-day for information.



Spencer Heater Company of Canada, Limited

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Penetang, Ont.

WINNIPEG, Man.
185 Portage Ave., E.

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71 St. James Street

SANITARY ENGINEER
PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907 PUBLISHED TWICE MONTHLY

Vol. XVI. PUBLICATION OFFICE, TORONTO, JANUARY 15, 1922 No. 2

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"Standard" PLUMBING FIXTURES

BEAUTY

That Attracts Favorable Attention

Displays make sales. It has been truly said that "goods well displayed are half sold."

With "Standard" Pedestal Lavatories displays can be made that prove very convincing to customers and very profitable to the plumber.

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Established 1907

Circulates Throughout Canada

Sanitary Engineer
Plumber and Steamfitter of Canada

Published First and Fifteenth of Month

Vol. XVI. TORONTO, JANUARY 15, 1922 No. 2

Plumbing And Heating Lines Revised

Extensive Budget of Price Changes Evident in Plumbing, Heating and Sheet Metal Materials—Manufacturers Announce Endeavour to Reduce Prices to Lowest Possible Levels Based on Current Costs in Anticipation of Improved Business in 1922

THE extensive range of price changes which have been announced in the opening market-reports of the current year, attach particular significance to the prevailing trend of events in the plumbing and heating industry. The lengthy budget of revisions enumerated in the last issue of Sanitary Engineer, has been greatly enlarged during the past two weeks by other numerous and important changes in the quotations on various commodities appertaining to the plumbing trade. Such marked revisions further emphasize the vital necessity of closely following the price tendencies on these products and of keeping in touch with basic conditions.

Announcements of this nature by both manufacturers and distributors of plumbing supplies, add considerably to the progress of liquidation and supply many examples of deflated values in raw material costs. At the same time, market concessions offer more or less substantial arguments for the trade in the effort to convince the general public that prices on this division of building requirements have come down, and are still coming down, in a manner which will stand fair comparison with similar existing conditions in other branches of trade.

The Importance of Price

The price factor is one of the dominant features of modern business development. This situation has been recently accentuated through the increasing number of price readjustments now fast becoming apparent, supported by the fact that the past few months have undoubtedly recorded a larger number of market revisions than during the history of the trade for many years.

Featuring the prevailing reports are downward price tendencies on such commodities as closet combinations, closet seats and enamelled iron tanks. Cotton waste prices, both on white and colored are revised to lower levels through easing of costs in various contributory elements. The downward change in eavestrough, both ridge roll and valley, has appeared through an additional ten points being quoted on the discount levels. A similar decrease is also announced on conductor pipe, with the current price on elbows remaining unchanged.

Many Other Declines

An easier tone in corrugated sheets has resulted in changed discounts being noted in some quarters. List prices are unaltered, but with a quotation of ten per cent. off now given, compared with the previous figure of 7½ per cent. Lower range boiler list prices have now been generally adopted, this being the outcome of price shading recently prevalent in these markets. Lower levels have also materialized in soil pipe and fittings, thus bringing quotations on these products to a more uniform basis. There is also a decline evident in quotations on the Penberthy line of brass valves, while the J.M.T. line of gate valves records another discount revision. Other items included in the lengthy list of reductions are Crescent wrenches, and stove bolts, while a new discount list has been issued on bolts and nuts.

PRINCIPAL PRICE CHANGES

Decline in quotations on closet combinations, closet seats and enameled iron tanks.

Cotton waste prices, both white and colored, revised to lower levels.

Downward revision in eavestrough, both ridge roll and valley.

Ten per cent. drop in prices on conductor pipe.

Revised discount noted on J.M.T. gate valves.

Reduction in prices on Penberthy line of brass valves.

Change in discount on corrugated sheets in some quarters.

Lower range boiler list prices now generally adopted.

Lower levels materialize on soil pipe and fittings, thus bringing quotations to more uniform basis.

Crescent wrench prices are slightly reduced.

Easier quotations on stove bolts through revised discounts.

New discount list issued on bolts and nuts.

Other miscellaneous price tendencies contained in market sections.

Effect on Building Costs

Added to the many reductions which have recently materialized, the present budget of price concessions, should contribute a fair ratio in the general easing of building costs. It will be remembered that such products as cement, standard wrought iron and steel piping, radiators and boilers, and various products, are now on lower cost levels. Another factor which should contribute towards lower building estimates are the recent reductions in sheathings, papers and roofings. Although such products are not vitally associated with the plumbing industry, yet their indirect connection is found in the relation to anticipated improvement in construction activity. The lowering of prices on builders' hardware is another example of this nature, and such events combine in stimulating the building trade in general, and the outlook for a larger proportion of home construction in particular during 1922.

In discussing the extensive degree of market changes, the majority of which are concessions of a more or less substantial nature—certain manufacturers have pointed out that endeavours have been made to reach the lowest possible levels, based on lowered production, costs and easier replacement values. This movement has developed, according to one manufacturer, in the hope that this will assist in stabilizing business conditions generally throughout the coming months.

Duration of Recession

On the other hand, it is admitted as a possibility that the process of deflation may continue to be evident as long as basic elements are experiencing downward revision. The anticipated declines in transportation charges, wage levels, distributing and production costs, are factors which bear an individually small effect on current price levels. Collectively, however, they constitute matters of importance, with a significant appeal to both the producer and ultimate consumer alike.

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Incompetent Plumbers Scored at Montreal

J. A. Francoeur Urges That Local Association Deal With Evil Now Affecting the Trade—Over-Supply of Cheap Labor Also Exists

MONTREAL.—At the regular monthly meeting of the Montreal Master Plumbers' Association, Jos. A. Francoeur, second vice-president of the Association, dealt with the evil now existing in the trade both from incompetent engineers, and cheap labor. He advocated that steps should be taken to require a certain amount of university training on the part of any person desiring to establish himself as a sanitary and heating engineer. Alluding to the evils affecting the trade as a whole, arising from the undertaking of work of this kind by incompetent executives, he urged that the local association be the first to inaugurate a system which would eliminate the evils referred to, and suggested that representations be made to the Quebec Legislature along these lines.

Inefficient Labor

With regard to labor conditions prevailing in the trade, Mr. Francoeur said that he was discouraged with the class of men now applying for jobs in the trade. He said that an over-supply of inefficient labor exists, and that the average quality had been brought to a very low standard owing to the fact that the high wages prevailing have encouraged an influx of men from country districts whose only recommendation is that they could mend pots and pans.

Master Plumbers and Local Unions

The meeting considered briefly certain difficulties as to wages and working conditions which exist between the master plumbers and the local unions. On the motion of James Ballantyne it was decided that before dealing with these matters, they consider the general subject of labor conditions affecting the plumbing and steamfitting trade at the present time at a meeting to be held within the next three weeks.

D. A. Bethune, in whose hands had been left the arranging of teams to represent the master plumbers to take part in the Builders' Bonspiel, reported that it had been agreed that only those curlers who are members of existing curling clubs were eligible. However, it was thought, in order to encourage the game among the younger element, that the Master Plumbers' Association, apart from curling clubs, should be entitled to enter a team.

The meeting was the first of the year since the election of the new officers, and H. Lavigueur was welcomed to the chair as president for the current year.

Should Plumbers Have Showrooms?

Halifax, N.S.

Editor, "Sanitary Engineer"—

"In November 1st issue of SANITARY ENGINEER appeared an article entitled 'Wholesaler as Plumbing Merchandiser.' To the mind of the writer this is a question of great importance to the trade, the argument set forth by the manufacturer in reference to the displaying of plumbing fixtures by the (installer) (or plumber) has been an adventure without success in many cases. This is true and in the larger towns and cities it has been proven, that the wholesaler can more successfully carry a display of plumbing goods. But in the smaller towns and rural districts where the plumber is operating, he has no other means of showing his prospect what he is going to instal for him outside of a catalogue and this latter has very little or no effect. The question of price is also quite as important to the retailer. This particular wholesaler does not agree with the present practice of protecting the retailer. Is his idea to sell direct to the customers and thereby take away from the retailers the chance of selling the goods that he is in business to sell?

"Cast iron enameled goods are very high in price. They represent about fifty per cent. of the total contract price of the ordinary houseworks at the wholesale price. Take this away from the retailer, and what has he got. I think the jobber is the cause of the very high prices in enameled goods at the present time. There is another point of interest to the plumber doing business in the smaller towns, which is closely akin to this article, and which for years has been an obstacle. This is that the prospect for a bathroom is able to go to the wholesaler and buy the fixtures that he or she requires and have them shipped home, and in many cases where sanitary conditions are not followed up as closely as should be the 'handy man' is called in to instal the plumbing. The latter condition is one that the trade has had to contend with in the face of the fact that some of our wholesalers, at least, are fair-minded enough to let the plumber live.

"MASTER PLUMBER."

TORONTO SANITARY CONDITIONS IN FAIR SHAPE

The report of the committee on Industrial Fatigue, appointed in 1919 by the Honorary Advisory Council for Scientific and Industrial Research, has been issued recently. The report is entitled "Survey of General Conditions of Industrial Hygiene in Toronto." The committee was composed of a number of experts in physiology and psychology from various universities, a representative of the Trades and Labor Congress, one representative of women's organizations and one manufacturer. Toronto was selected as a representative locality in which to study the general conditions of industrial hygiene. Seventy-six plants, including all the larger factories in the city, were visited. One-third of the total employees in the plants visited were women.

Ventilation was found to be not seriously defective, except in the smaller plants of old-type construction and in buildings, common in Toronto, which have been converted from other uses. The same condition is found in regard to lighting, both natural and artificial. The advantages of clean windows, however, are not enough appreciated. Lavatory accommodation shows some improvement in new plants, but in many the conditions are deplorable, partly owing to the habits of a minority of the employees, and in comparatively few are the recommended standards for number and construction complied with. In dirty occupations, where baths are provided, these are seldom used, mainly because of inadequate dressing-room accommodation. Varied conditions were found regarding disposal of waste, but extremely filthy conditions exist in a few plants.

PLUMBING AND HEATING LINES REVISED

Continued from page 9

When interviewed on the subject of price declines occurring since the New Year, one manufacturer mentioned to Sanitary Engineer that their particular endeavour was to bring prices on their goods down to the lowest possible levels. This movement is generally in preparation for the salesmen going out to their respective territories after the annual inventory period. It was stated that the sales representatives had been given every opportunity to test the prevailing quotations, and they are consequently convinced that present prices are about as low as current costs will allow. With this spirit spreading throughout the trade, the opinion was expressed that business should be encouraged back into normal channels through an accurate knowledge of the facts as regards prices.

"Some twleve years or so ago," remarked one distributor of plumbing materials to Sanitary Engineer, "we were frequently advised that prices were down to rock bottom. Since then, however, repeated adjustments have taken place in the level of values."

Boosting Sales of Bathroom Fixtures

Wright Teale Plumbing Co., London, Ont., Adopts New Plan Which Proves Effective in Aiding Sales of Bath Room Fixtures When Called Upon to Make Installations—Building Business in Toilet Paper, Small Fittings, etc. Brings People to the Showroom Frequently

LONDON, Ont.—The Wright, Teale Plumbing Co. of this city is working out a plan for boosting sales of bathroom fixtures that is producing very satisfactory results. Whenever the firm is called upon to make an installation of bath room equipment, whether in a new residence or an old one, the opportunity is seized to try and sell bath room fixtures.

"We find that the great majority of people are interested immediately," said Russell Wright to Sanitary Engineer. "Most of them had not thought of fixtures but when they are drawn to their attention they are glad to discuss the matter. They realize the value of suitable bath room fixtures and the service that they will give, and we usually find that home owners are appreciative of our having brought the matter to their attention. It seems to me that this matter of selling bath room fixtures is one to which many men in the trade have been giving little or no attention, with the result that men in other trades have been cashing in on a nice business that rightfully belongs to sanitary engineers. We have found that it is a very easy matter to develop sales of fixtures and that they carry a margin of profit that makes the business worth going after. In the case of new homes we frequently get an order for all the fixtures required. In some cases people prefer to buy perhaps only one or two really good fixtures at the time and buy others from time to time. The point for the man in the trade to keep in mind though is that people are really interested in fixtures and that all he has to do to sell them is to talk about them."

Very often when bath room repairs are being made there is also an opportunity for selling fixtures and it is taken advantage of.

Mr. Wright has also found that it pays well to keep a nice display of fixtures in both the shop and window. The window display while not large is striking and carries a real interest to home owners. The firm made a very simple little display stand consisting of a board neatly covered with green baize. On this are shown various fixtures, the white enamelled goods and the shining nickel lines, standing out splendidly against the dark green background. The stand which occupied but little space has been given a permanent place in the firm's display window and it is constantly producing results in the shape of inquiries which sooner or later develop into business.

In addition to this business which is picked up from passers-by the window display and the store display frequently attract home builders when they are in the store making a selection of equipment. If they do not see the fixtures, the matter is tactfully taken up with them and their attention is directed to the displays, with the result that in a large number of instances sales are made.

"It may seem a little thing and unimportant," said Mr. Wright, "but we always make a point of keeping our fixtures and plumbing goods that are on

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The plan of developing a sale for various plumbing fittings lines, and other bathroom necessities, with the idea of increasing the number of people who visit the showroom, is fully described in the article herewith. The only way to make this plan effective is to have a display of various equipment and accessories arranged in the showroom which the visitor cannot overlook. Placing the sale of plumbing equipment on a merchandising basis, the way to get results is to adopt the plan used by progressive retailers, namely of getting some means to attract a large number of people to the showroom and then utilizing a combination of sales effort with displays of the various lines.

Patterns For Cornice Miters

Written for Sanitary Engineer by O. W. KOTHE, Principal St. Louis Technical Institute, St. Louis, Miss.

IN SOME cities many of the streets are laid out at various angles to others and this often prompts architects to design buildings that have both obtuse and acute corners on the front. Such a corner is shown by plan D-A-F, while the detail cornice shows how the metal will be bent to ornament the walls.

Now on a side of the building a square return is placed as at D-C with the miter as C-E while a corner of the building has an acute miter as A-B. These miters can be established by bisection or by spacing the lines equal to the projection of the cornice, either way is satisfactory.

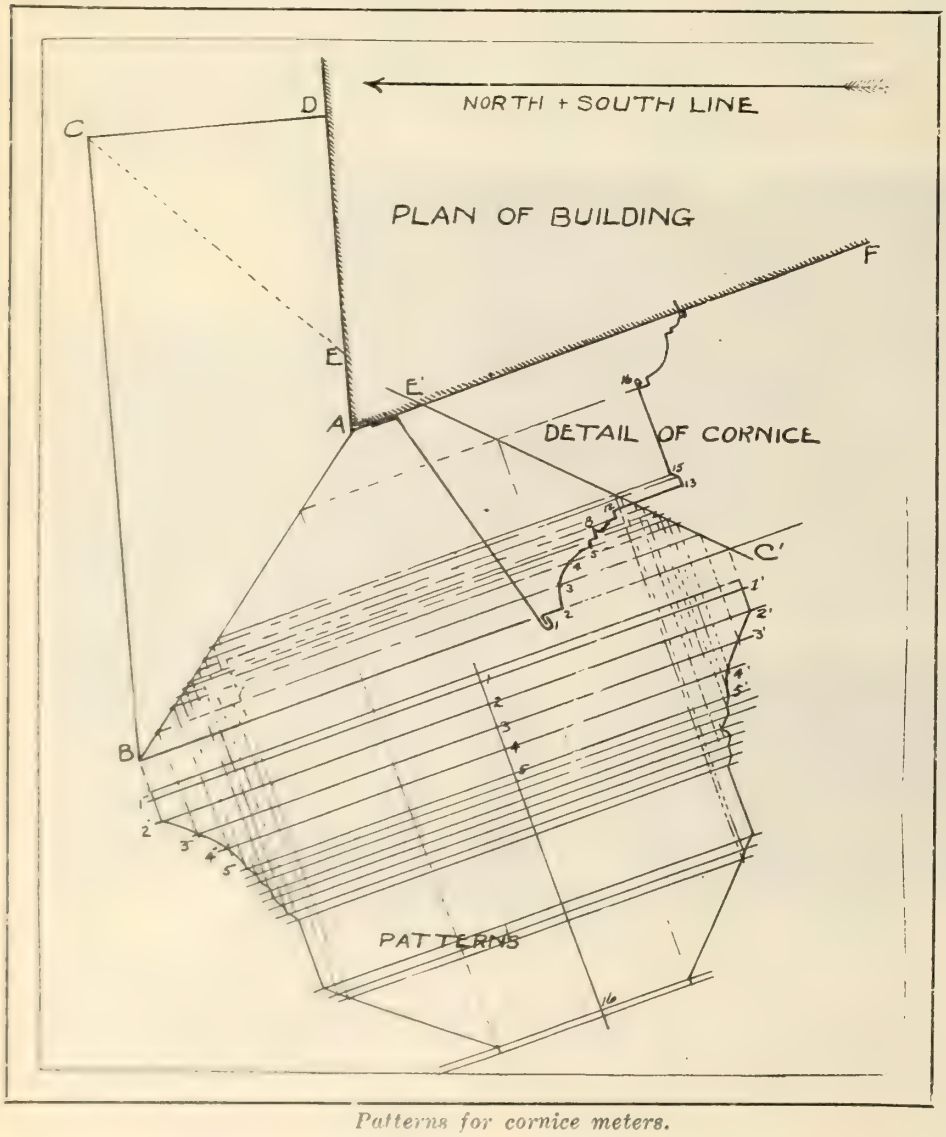
So first draw the wall line D-A-F and along one side of it, detail the section to cornice and divide all curved lines in equal spaces, numbering each point and bend as shown on the plan. After this draw the border line as I-B-C-D. This will give the miter A-B, and the miter C-E being on a 45 degree, can be planted as E″-C″.

Observe in this way we layout both patterns on one stretchout and save further projecting. Then from each point in detail, extend lines parallel with the wall A-F until they intersect both miters A-B and C″-E″.

To set out the pattern for the crown mould and plancser of cornice pick the girth from 1 to 16 from detail, and set off as 1-16 in pattern. Then draw stretchout lines indefinitely and from each point in the miter A-B and also E″-C square out lines at right angles to A-F until they intersect stretchout lines of similar number as in points 1″-2″-3″-4″ etc., also 1″-2″-3″, etc. By joining these various points with lines, we have the 2 miters developed as shown.

The miter on the lower side is for the acute angle while the upper miter is for the square return. The bed mould of cornice would be laid out in the same way, using the same miter lines and that would join to the rest of the cornice as at 16.

These patterns are made to a length easily laid out on the drawing board after which they are punched off on the metal and of course, laps for longitudinal seams and lugs for soldering, must be allowed extra.



Patterns for cornice meters.

BOOSTING SALES OF BATHROOM FIXTURES

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display clean. This certainly is a big help in making sales. In a great many instances it is the women who really make the final decisions about fixtures. They like to pick them up and examine them and it is certain that they regard a shining nickelled fixture or a spotlessly white one with a great deal more favor than they would a piece covered with dust or with the shine dulled. Keeping stock clean and presentable not only helps to sell it but it just naturally creates a good impression about our shop, and that is something that is valuable."

For the last two months the firm has been handling toilet paper, not alone for the profit it carries, but with a view of advertising the store.

"We have found our sales in the paper increasing steadily," said Mr. Wright, "ever since we put in our first window display. We believe that if we get people coming to the shop for paper they will get our firm name in their minds and come to us for other things and that is what is happening."

The firm keeps a pyramid of toilet paper in one end of its display window. Between this and the bathroom fixtures are shown various plumbing goods. This part of the display is changed regularly and seasonable lines featured as far as possible.

Mr. Wright is optimistic regarding the business outlook for 1922.

"Inquiries are coming in constantly regarding equipment for new homes that are being planned," he said, "and there is every indication that there will be plenty of business offering. The reductions that are being made in building materials and in plumbing goods all have a good effect in getting work started. I believe there is a really large volume of work held up because prospective builders have been so uncertain regarding prices and did not wish to buy and then find out they could have bought more cheaply. The sooner prices are stabilized the better for everybody."

WANTS TENDERS CALLED

Sydney, N.S.—Action against the city is threatened by A. E. Cunningham, contractor, unless tenders are called for the major part of the $25,000 worth of sewer construction which the city is now undertaking for the relief of the unemployment situation.

Heating and Ventilating

The Fan System Of Heating For Homes

Design, Construction and Installation of Furnaces to be Used With Blowers Must Differ From Furnaces Used in Gravity System—Take Steps to Reduce Difference in Temperatures in Heating System of a House

SOME interesting facts in connection with the fan system and other systems of heating homes and buildings, were given by a speaker before a recent gathering of those interested in warm air furnace installations. The address was delivered as follows:—

"We have never heated very many residences with fan systems. This is not because of any doubt in my mind as to the efficiency, or the successful operation of a fan system in the ordinary home but it has been due to the fact, largely, that there have been no fans available that have been adapted to that class of heating.

"There have been no fans available that haven't cost entirely too much money, both in the matter of first cost of installation and in the matter of operation cost. Few people would want to run a fan constantly twenty-four hours a day throughout the winter and in order to have it so set as to operate at will by simply turning on or off a switch would mean so much obstruction in the cold air intake as to forestall any successful operation of the plant as a gravity system.

"Only recently has there been invented and put on the market a fan built specifically for this purpose, one that will deliver the air and will not obstruct the cold air return and yet may be turned on or off by the simple pushing of an electric switch, which may be done from any part of the home.

Different Construction

"Another element enters into the matter, which must be given very careful consideration. The design, construction and installation of furnaces to be used in connection with blowers in the ordinary home must be different from that of furnaces to be used in a gravity system in the same home. The underlying basic principles of heating with forced circulation are so different that I do not see, at least, how any one furnace can be built that would be adaptable to both kinds or classes of heating.

"I heard Billy Sunday speak not long ago and one of the things that impressed me more than any other one thing that he said during the evening was this: that if you are going to pick your teeth, you would not get a crow-bar or a monkey-wrench, or a hammer, or even a saw-log to do it with. If your wife was taken sick suddenly, you would not call in a blacksmith, a tinsmith, nor the furnace man, not even a plumber, and he went on at a considerable length drawing comparisons in which it was clearly shown that if you expect to do any particular thing, you ought to have equipment designed specifically for that thing.

"If you are going to heat a home with a mechanical system, you should use, first of all, a furnace designed specially for that class of work. Then your pipe system should be designed as to give you the proper velocity and deliver your air at the proper point in the home and these points are not the same as ought to be used in a gravity system.

"I may say that in my talk to-day I am not going to assume that it is impossible to heat the average home with a gravity system of furnace heating. In the larger homes of twelve or fourteen rooms, it very often occurs, however, that there are rooms in that home that are very difficult to heat at certain times. There are other rooms that are impossible to heat at any time and there are other rooms that heat entirely too fast, so that the greatest problem that we have facing us in the average eight to fourteen room house is that of heating all rooms the same temperature at all times and under all conditions.

Variation in Temperature

"In gravity heating, where the circulation depends on the difference in temperature of two different columns of air, it is well nigh impossible to do that in a satisfactory manner. I have accumulated some very interesting data in the last three or four years with reference to the difference in temperatures between the ceiling and floor in ordinary and large sized homes.

"In some homes heated with pipeless furnaces, I have found as much as 35 degrees, yes, in one case 37 degrees, difference in temperature between the ceiling and floor. In order to get the floor warm enough so that one's feet would be at least comfortable, it makes the upper portion of the room very warm.

"I have found pipe furnaces to deliver about the same results. I have made tests on hot water heating where the temperature ran as high as 23 degrees higher at the ceiling than at the floor. I have found in steam heated homes that same difference and in almost every case of steam heated homes that I have tested, the temperature runs from 15 to 17 degrees higher at the ceiling than at the floor.

"I have succeeded in overcoming, largely, that condition by using warm air furnaces with large pipes and registers, thereby producing a more rapid circulation of the air within the rooms.

"We have one furnace, that has been tested by a professor in the heating engineering department at a University Farm School and a difference of only 4 degrees shown between the ceiling and the floor when the room was heated to 70 degrees at the breathing line.

"This convinces me that it is possible to reduce the difference in temperature and to heat, not only one room but all rooms in a home, in a very satisfactory manner with warm air provided that you can produce the proper circulation.

"Due to the fact that heat naturally rises, it is obvious that the only way to hold the temperature at the ceiling down to anywhere near the floor temperature is to produce a very rapid circulation of air within the rooms. Now consider a room quite a distance from the furnace with nothing but gravity to produce a circulation through a horizontal run of pipe. It is manifestly impossible in a gravity system to produce that measure of circulation necessary to supply the temperature satisfactorily. That being the case, the only other solution is a mechanical plan to push the circulation fast enough to do the work.

"With apologies to Mr. F. R. Still, of Detroit, Michigan, I want to quote from an article published in the Journal of the American Society of Heating and Ventilating Engineers:

"For example, assume a house which

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Great Need for Competent Plumbing Inspectors

Good Sanitary Plumbing as Necessary as the Doctor—No More Beneficial Craft Exists Than Plumbing Operators—Unfortunate That Incompetent Workers Lower Status of Industry

CHATHAM, Ont.—Members of the local Lions Club are wiser on a subject that has been discussed unsparingly by classes, when President Ed. Wanless delivered an address on the plumber of to-day.

"Good sanitary plumbing is as necessary, as the calling of a doctor when one is ill.," said Mr. Wanless in opening his address, "and if one has good plumbing done there is a big chance that they won't need a doctor so often."

The speaker stated that many of the plumbing jobs that were done in the city were an absolute disgrace and a detriment to health, and he strongly advocated an inspector in the city, who should see that the by-law was rigidly enforced. He stated a poor plumber knew nothing of sanitation, which was the cause of much sickness in the homes as a result of sewer-gases.

"It is a case that needs remedying and can be well taken up by the Lion Club," said the speaker.

Mr. Wanless explained fully with illustrations, the correct procedure of fitting a house from the time water was brought from the street till it was fully installed. Also how a correct job was done and comparisons were made of the effect of a poor job.

"Plumbing has always been held up by the people in general as the robbing game of the world, but there is no more beneficial craft," said the speaker. "The average plumber is not excessive in his charges. You are paying only for his time at the rate of one dollar an hour, to say nothing of his education and the time it takes to learn the trade. One pays a doctor or a lawyer in comparison some twenty-five times as much and thinks nothing of it."

He pointed out, following his address, the absolute need of sanitary plumbing and allowed the members to ask questions on the matter, which were willingly explained.

FAN SYSTEM OF HEATING

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has an exposure equivalent to 120,000 British Thermal Units heat loss per hour, when the outside weather is zero and the inside temperature is 70 degrees Fahrenheit. It is usual in such weather to recirculate the air inside the building and it usually comes back to the furnace to about 65 degrees. Raising 1 pound of air from 65 degrees to 140 degrees Fahrenheit requires 17.8 British Thermal Units and to raise it from 65 degrees to 240 degrees Fahrenheit requires 41.5 British Thermal Units. Hence it will require 6,750 pounds of air at 140 degrees or 2,900 pounds of air at 240 degrees Fahrenheit to supply the heat required by the building. In other words, it requires about 2-13 times as much air at low temperature as at high temperature to supply the same amount of heat.

"Theoretically, it should require no more coal in one case than the other, if exactly the same amount of heat is supplied in both cases, but in practice this is not the case.

"Now, the above refers simply to the amount of heat that is necessary to raise those various amounts of air to a given temperature. That has nothing whatever to do with the power necessary to circulate that air. It is known that, to pass a given amount of air through horizontal pipes requires a certain amount of power to overcome the friction and resistance so that in the one case, if the air is driven by a fan, the power required to drive it is an electric power, while in the other case, if it is gravity system, the power required to drive the air through those pipes is simply one of gravity, or the difference in weight between two columns of air at different temperatures.

"Therefore, in addition to the 2,900 pounds of air at 240 degrees Fahrenheit to supply the heat required to heat the building you have about the same amount of air to heat, or you have to heat the 2,900 pounds of air at a higher temperature in order to give you the power necessary to force the air through the pipes and overcome the resistance and friction.

Cost of Fan

"To operate the motor to drive the amount of air required in a fan system would require about 38 watts or approximately 75 per cent. of the current required for an ordinary incandescent lamp. At 10 cents per kilowatt hour it will cost about a third of a cent an hour to run the fan and force the amount of air necessary to deliver the heat through the entire house.

"On the other hand, in order to do the same work on a gravity system, it would require about fourteen pounds of coal per hour to create heat or power enough for a proper circulation of the air, in addition to the heat required for heating the building. If coal costs $14.-00 per ton, it will cost about 10 cents per hour for fuel to circulate the air, as against 1-3 of a cent to use electric current and a fan. These statements are based on there being 14,000 British Thermal Units in a pound of coal and a 60 per cent. efficiency in the furnace and using 14 pounds of coal per hour just to create power necessary for the proper circulation of air in addition to the heat required to heat the building.

"Another thing, which may properly be considered at this point, if the weather is extremely cold outside and it becomes necessary to force the fire, the relative efficiency drops so that it may possibly, at times, require 20 pounds of coal per hour to circulate the air. In that case, the relative cost of gravity system over a fan system is 42 times as great, to circulate the air.

"Please do not misunderstand me. I am not undertaking to tell you that it is going to cost 42 times as much to heat a house with a gravity furnace system as with a fan system. I am referring simply to the cost of circulating the air but that portion of cost added to the actual cost of generating heat enough to take care of the home does increase the cost of operation of a gravity, over a fan system of heating.

Heat Loss Excessive

"There is another element of cost that ought to be considered at this point and that is this, you know as well as I do that heat loss is determined, largely, by the difference in temperature of the air on the inside of the house as compared with that on the outside. Now, if it is necessary, in a gravity system, to heat the ceiling 15 degrees warmer than the floor, in order to make it comfortable at the breathing line and if it is necessary on account of handling a smaller volume of air, to heat that air to 240 degrees or warmer, then the temperature of the air at the ceiling line is excessive and the heat loss is bound to be excessive.

"If you can, by circulating the air faster, reduce the ceiling temperature to within 1 or 2 degrees of that at the breathing line, it is easy to see that your heat loss is going to be less. Therefore, the cost of operating a fan furnace system should be at least 25 per cent. less that that of operating a gravity heating system. In other words, a man might just about as well go down in his basement and throw 75 cents worth of coal into the furnace and 25 cents worth outdoors or into the ash pits, as to undertake to heat his house with a gravity system when compared with what could be done with a mechanical system, if his house has more than 8 rooms."

OPERATION OF MARKING ACT POSTPONED

As we go to press Sanitary Engineer has recived telegraphic advice from its Ottawa representative that the operation of the Marking Act governing marking of country of origin on imports, has been postponed until the next session of Parliament. This action is interpreted as meaning that Section 12 A, of the Customs Regulations, as outlined in a recent issue of Sanitary Engineer will be subsequently repealed. The fact that the postponement is effective until after the close of the session is in itself regarded as indication that the Government has this end in view.

F. E. MUTTON.

Salesmanship Now Being Subjected to the Acid Test

"Many men have wisdom but don't know how to apply it—Industrial Activity directly dependent upon salesmen's efficiency—No use waiting for something to turn up."

By F. E. MUTTON
President and General Manager International Business Machines Co., Ltd.

ONE of the major problems facing sales managers today is building up an efficient sales force to secure orders. Sales organizations are being subjected to the acid test; some of them will fail to survive that test. We have passed through four or five years recently when men who were called salesmen did not have to sell at all; they became very soft in their ideas of work, yet they made wonderful sales records. Now times have changed; order-takers are of no use now.

We have seventy-two salesmen in our Canadian organization, we reach from one ocean to the other, and have offices and service stations in all cities and large towns.

Get Down To Hard Work

It has occurred to me during the last six months to a year, carrying our share of worry as to business conditions, that there are many men who have got a lot of wisdom but do not know how to apply it. They do not realize the vital application of it, and that is the hardest kind of work. Especially for salesmen who have had five years of easy going, it is hard to realize that they have got to get down to hard work or they will not stay in a sales organization very long.

Of course I recognize that a sales organization selling a specialty like Time Recorders or Scales is different from one selling a standard article, however, I believe the same fundamental principles apply, and that this matter of selecting and training salesmen is the most important factor facing executives of any concern to-day. It is the salesmen that keep the factory chimney smoking, and the amount of smoke depends on the efficiency of the sales-organization, absolutely.

The New Conditions

The quicker we all realize that prosperity depends on the action of our own self-starter the better. A good many people are just waiting for something to turn up, even sales managers. To my mind there is nothing "going to happen" until you make it. Instead of the men going out on the 9 o'clock train they will have to go on the 7 o'clock if they are to succeed, and instead of coming in Thursday night or Friday noon, they will come in Saturday morning—if they are lucky. Those are the new conditions that we are facing.

I want to convey this idea; it is not necessary to tell most men these things, it is necessary to "sell" them. In our organization we never tell a salesman to do something. We "sell" the proposition. That is the only way to get the proper co-operation and spirit.

"Prosperity depends on the action of our own self-starter; nothing is 'going to happen' until you make it."

"Salesmen should not guess, but know what they are talking about."

The art of selling is the art of buying. What do I mean?—well, the amount you sell depends on the amount of confidence you can buy, the respect you can buy from the prospective customer. I think that it is an important principle to have the sales force memorize.

Obtaining Salesmen

Now where are we going to get our salesmen? Our experience is that we get our best men through our present sales force. Those men know the policy of the company, they have confidence in the company, they know the calibre of men the company want, and they have seen in action the men that they are going to send in to apply for the position. That is something you cannot do as a general proposition. They know whether he plays pool in the hotel until 2 a.m., or poker until daylight. They know his characteristics through working with him. I emphasize that, because looking back over my experience during the last thirty years I find that the best salesmen it has been my good fortune to secure came through the salesmen we already had.

You will not buy an automobile unless you try it out, but there are many hundreds of salesmen employed by sales managers who have never seen them in action. A man comes to your office, naturally he is at his best, but that does not tell you what he will look like in Peterboro or Montreal or Vancouver. His nails are clean and his shoes are shined. We did the same ourselves years ago. The important thing is to see the man in action in his regular working form, day in and day out, get a line on his characteristics, how he stands up under the test of the three a.m. bus, and the one old kind of pie and no cream.

The Other Fellow's Salesman

The next channel is from the salesmen that canvass you for orders; and that is a good channel. "Do you mean to tell me that you would deliberately employ one of my salesmen?" someone may ask; I certainly do. If you say that is not a fair proposition I do not get your point of view. If my salesmen can make more money with you they will go with you. Therefore I am never too busy to see a canvassing salesman. The bank manager can wait but this man may be the one I need as the corner-stone to a certain portion of our sales force.

I believe the successful sales manager is the man who is never too busy to see a canvassing salesman. If I am in a conference which would make it necessary to keep him too long, I go out and see him for a moment and apologize and make an appointment.

I spent twenty years with the National Cash Register Co. Mr Patterson, the president of that company, is known as a wonderful leader. We were in a convention of the sixteen sales managers of the North American Continent. Mr Patterson came in and remarked: "These are the sales managers, yes; now just what do you

gentlemen do for the high salaries you get?"

Well, it was kind of sudden. One chap stood up and said, "I keep my eye on the territory, I see that the offices are kept nice and clean."

"And you?"

"I check up the accounts and payments and consignments—"

Well, I was thinking fast, it was coming close to me, I said to myself, "these boys are not thinking right," so when he came to me I said, "I employ and train salesmen." I was with the N. C. R. for twenty years.

Looking Them Over

I would have lost the opportunity to secure excellent men if I had been too busy to see salesmen. Often a man has come in and although I did not need him at all, he made an impression. I talked to him fifteen or twenty minutes, asked if he would mind coming in again day after to-morrow—next week,—I wanted to get another slant on him. They never act exactly the same twice in succession. I asked him — "Now just tell me how much money you make and how much you would like to make. It may be that you are fitted for this business. I am going to find out in the next fifteen minutes if you are."

From the Retail Store

Another channel is the retail store. We have secured some excellent men who were retail store clerks. There is a field where you willl find ambition; also, it is a field where men are not over-paid. An illustration; we had difficulty in getting our devices in retail stores. Our time-recording division salesman had been trained to interview manufacturers and factory men, but they fell down on the stores. I discovered that they did not know the language of the retail merchant, they had never been in that atmosphere. I looked about and found a young man who was head clerk in one of the large hardware stores in Hamilton, snappy, well-dressed, knew his job or he would not have been head clerk. I brought him to Toronto and employed him. We had to teach him the time-clock business as it related to the retail store; I said to him, "Now you will have to go into the factory and put on a pair of blue jeans and work from 7 till 5.30 for two weeks, for which you will not get any pay."

"All right," he said, proving his mettle.

I was only testing him really, but this was his mechanical training. The first month that young man was out in guest of orders he sold eighteen machines to eighteen stores. That was good work. He knew the atmosphere and the language.

The weakest source is advertising for salesmen. I do not believe it is good business or sound policy to hire a man who is out of a job. That, perhaps, sounds severe, but there is generally some reason why he is out of a job, and it is difficult to get at the true reason. If you are going to put up a "Safety First" sign get a salesman who is in a position.

"The salesman keeps the factory chimney smoking and the amount of smoke depends on the efficiency of the salesman."

"Many men have a lot of wisdom but don't know how to apply it.

"The Bible"

Now, I want to put before you in this graphic way, these principles:

Get them clean —Mentally
—Physically
—Morally
—Spiritually

That to me is "The Bible" in hiring Salesmen. There is no one of those things that you can afford to overlook. And you can test them all out in your interviewing.

Mentally.—The salesman who will consume time telling those stories that we sometimes hear is not clean mentally. The results show physically and morally.

Spiritually.—This is very important. Sometimes we meet a man who does not believe in such things as churches. I am not preaching a sermon, but I know the value of that element, we all do.

Then I would like to add, Keep Them Clean as to the environment they live in.

Organization

In my opinion the following elements come under the head of organization in a sales force.

Employing Men
Training Men
Supervising Men
Promoting Men
Firing Men

If we are capable of the first four, we will not have to worry about the last.

As to qualifications, here they are:—

Health
Character
Deportment
Reputation in Own Neighborhood
Guarantee Bond
Manner
Ambition
Confidence in Himself

I have a chart on my desk and that is always ticked off 100 per cent. before a man is taken into our organization. Health is most important. If a man has not got 100 per cent. health he is anchored. A lot of talks have been made on Salesmanship; to me Salesmanship is the combination of a lot of qualities. Health is the foundation.

Our company spends a good many dollars a year in taking care of the health of our organization. We talk to them of what to wear, what to eat, etc. A lot is wasted but some gets home and it does a lot of good. I venture to say when you meet one of our salesmen you find he is "in the pink." If he is not, he will not go out, they are trained not to.

Foundation of Everything

When a salesman approaches a prospect, one of the most important elements in getting that man's order is the salesman's health. Selling is largely a matter of domination. You need all the health and energy at your command to dominate some people; if you are only feeling about 70 or 80 per cent. fit, the buyer will do the dominating. Health is the foundation of everything. Take personality, the salespersonality, you just sense it. It is a thing you cannot define, and the greatest element of personality is health. His eyes are bright and his step springy and he thinks just a little faster than his prospect; he cannot do this unless he has 100 per cent. health.

Supervision

Then, supervision. I think lack of supervision is one of the weak links in our work. Every man needs it. Let me illustrate. The chain is—

Salesmen
Sales Agents
District Managers
Sales Managers
General Managers
President

Does it stop there? No, it goes on—

Executive Committee
Directors
Shareholders

I would like to make this subject clear.

Who supervises Salesmen? The Sales Agents.

Who supervises the Sales Agents? The District Managers.

(To be continued.)

PRIMARY TENANT PAYS

Toronto.—Magistrate Cohen in the Public Health Court, held that the lessee of the entire premises was responsible for the plumbing in the premises, despite the fact that the tenant had sub-leased from him on an agreement to keep the plumbing in repair.

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights —Keep the Entire Series Where It May Be Referred to and Studied

Article No. 46 of Series; Illustration No. 55

FIG 55 shows the best method of treating sewage by broad irrigation on a large scale, and consists of splitting up the area available for filtration purposes into four parts which allows for the periodical resting required for successful results.

The sewage discharges from the tank by gravitation, if possible in open carriers, into the distributing chambers which are constructed with the necessary valves for diverting the sewage into the area so prepared for receiving the sewage.

Each area is separately under-drained connecting to a main effluent pipe which discharges into an inspection manhole so that the filtered effluent can be inspected or analyzed from any area at any time before finally passing into the stream.

It is always advisable to have one area at a lower elevation than the others, so that if the effluent from any filtration area is not up to the standard of purification the valves in the inspection manhole can be closed and the sewage diverted onto the lower area to undergo secondary land filtration before being discharged into the stream.

The sketch fully illustrates the method with the exception of the way in which the sewage is evenly distributed over the land in even layers; this is accomplished by digging grips about 6" deep on the whole surface over which the sewage flows evenly onto the land.

Small iron plates may be placed every fifty yards apart in the grips to dam up the sewage in order to facilitate even distribution.

The underdrains are 3" or 4" agricultural butt jointed pipes about six feet deep, laid diagonally to the flow to prevent the sewage running directly down these subsoil drains. In clay these subsoil drains should be 20 feet apart; in sandy loam 40 feet; and in light soil 60 feet apart.

The effluent outfall connecting to the stream must be well above the water level and if possible above the flood level or drainage will cease in time of flood.

It cannot be said that farm lands treated by sewage—either by broad irrigation or intermittent downward filtration—derive much benefit from a manurial standpoint as the manurial ingredients of sewage can only reach the land with so many times its volume of water, thus rendering it valueless unless some form of extraction is possible.

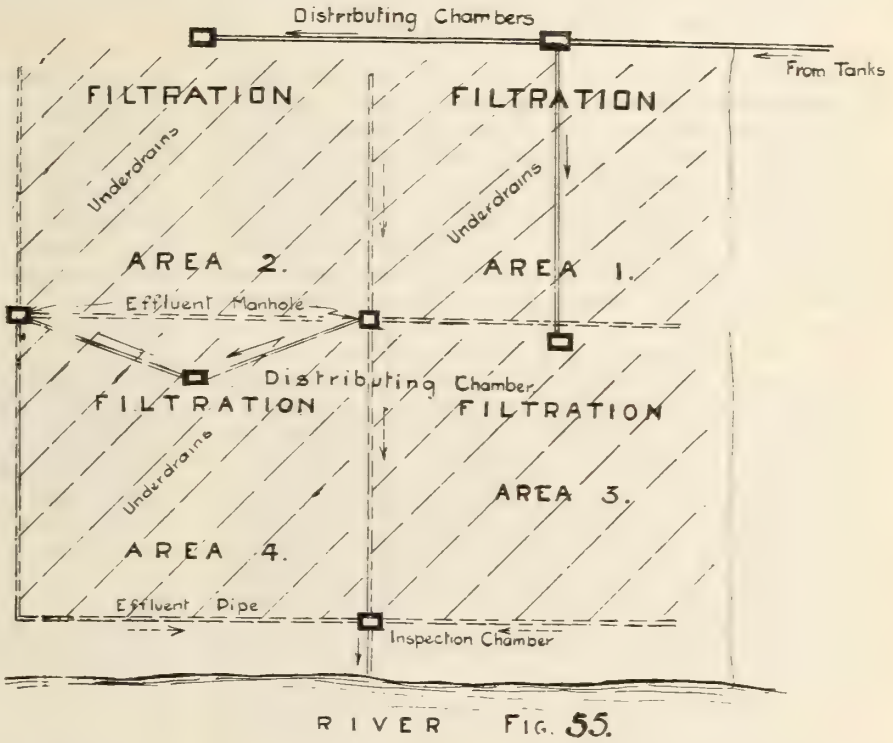

FIG. 55.

Another method of treating the clarified tank effluent on the surface of the land is termed "intermittent downward filtration" and under this system the area is also divided into zones or parts to facilitate periodical resting and well underdraining as previously described.

The surface of the land is cut into ridges and furrows.

The ends of furrows are blocked and the sewage is run into same until its level barely reaches the roots of the plants on the ridges. When this has soaked through, an interval of a few hours elapses before any more sewage is again run into it. This method of treating the sewage is applied in turns over the different areas until the crops have matured then the ridges and furrows are dug over so as to thoroughly mix up the earth and allowed to stand until the soil is again ready to be used for filtration purposes. It is essential that a period of rest be given between each treatment and that the land be kept clear of weeds, etc.

The usual method of treating the septic tank effluent from a small private installation in good porous soil is shown in Fig. 56. The sewage is automatically discharged at certain intervals by the syphon in the second chamber through the discharge pipe into the agricultural open-jointed tile drains. These drains should be 3 or 4 inches in diameter and laid as near the surface as possible. The distance apart or the number of feet of tile required depends entirely upon the nature of the soil. In light sandy soil the tile drains may be laid 30 feet centres and twenty lineal feet is ample for purification purposes, whereas in heavy clay soil the tile should be laid at not more than 10 feet centres or 40 to 50 lineal feet of tile is required for each person.

Fig. 57 shows the arrangements of tile drainage on sloping ground. The automatic syphon discharges into an inspection chamber and the tile drains are laid parallel to the contour or grade of the land, which allows the tiles being laid with the required fall at minimum cost.

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The Road of Progress

AT RECENT gatherings of those representing various branches of the plumbing and heating industry there has been considerable discussion about plans for future merchandising of plumbing goods. The opinion has been expressed that plumbers should adopt similar means of co-operative advertising as electrical and other dealers. In planning any such action, care should be taken to ascertain the dissimilarity existing between the plumbing and other industries. Whereas the electrical and other dealers can to a certain extent create business by establishing a desire among consumers for an article, such appliances can be provided through not only electrical stores but through hardware, plumbing and other stores. As a matter of fact in Canada there are said to be more electrical appliances sold through department and other stores than through the exclusive electrical merchant. In the plumbing business, on the other hand, it may be some time, if ever, before it will evolve into a straight merchandising proposition for the reason that even if people purchase their own plumbing material they will be absolutely dependent on the plumber for its installation. It is compulsory by law in most cases to employ a plumber to instal the equipment, and manufacturers have adopted the policy of avoiding communities where inexperienced operators are employed because of the trouble caused through faulty installations. The basis of co-operative advertising would therefore be different in the plumbing industry from others.

In the future the competent plumber will be given proper recognition. His services, while not as vital as the doctor's in case of sickness, are more essential to the general health of the public, and when the industry cuts down all unnecessary overhead and is able to quote satisfactory figures on any job, whether in competitive tender or by open order, the business will then be on the high road to success and it will then not be long before the public will recognize that plumbing as done by sanitary engineers is an important factor in the life of the community.

Many Possibilities Offering

THE VALUE of construction contracts in Canada in 1921 is estimated at $240,000,000 compared with $255,000,000 in 1920 and $190,000,000 in 1910. These figures are significant of the fact that building construction, like many other things, has been on a very fair volume during 1921, but it has been thought poor because of comparison with the high peak of the boom. Another thing which must be considered is that without the recession in material and labor costs in 1921 the actual value of building in that year would have been greater than 1920; the total volume was undoubtedly greater, and this in spite of the fact that industrial construction was practically at a standstill. Why then has there been so much talk about lack of opportunities for plumbing and heating business? It appears as though there has been more talk than action.

The prospects for building construction in 1922 are the best. Much deferred work is to be undertaken as soon as weather permits. The action of certain organizations in taking steps to advertise to the public concerning building costs should result in increasing confidence among prospective builders. The Secretary of the Toronto Builders' Exchange is quoted as stating that construction costs now represent a decline of 35 per cent. from the peak. This being the case, a record year in building might be looked for during 1922 and preparations made by the plumbing and heating industry to take advantage of the situation.

Do Your Men "Yes" You?

B. C. FORBES in a recent editorial dealt with the very unfortunate condition which exists in many organizations. He told how James B. McMahon, then general manager of the company making Gold Dust, demanded to know from John Lee Mahin, the noted expert who was then handling the company's advertising, "What's the matter with our advertising in Ohio?" Mr. Mahin replied that nothing was the matter with it. "There must be," snapped Mr. McMahon. "The proof is that our sales in that state have fallen off badly." Mr. Mahin said he would try to locate the reason, but that he knew the handling of the advertising was not to blame. And he forthwith proceeded to make exhaustive investigation of competitive conditions and so forth in Ohio. After gathering, compiling, and analyzing a mountain of data, Mr. Mahin notified the general manager that he was ready to take up the matter with him.

On a day named by Mr. McMahon, Mr. Mahin arrived with his data. Without examining it Mr. McMahon said, "Sit here while I call in our Ohio salesmen." Eight men trooped in. He asked them what the trouble was, and there was remarkable unanimity among them as to the cause. Then, Mr. McMahon began to address them. Before he got through he had them all assenting that the cause was something totally different from what they had declared—all except one salesman who ventured to disagree with the boss and insisted that in his opinion the trouble was what he had originally outlined. "That's all!" snapped Mr. McMahon, as he dismissed the salesmen.

Turning to Mr. Mahin, he said: "We don't need to go any further to find the trouble, eight so-called salesmen and only one man in the whole lot."

Are you executives quite sure that a lot of your people don't think it wisest to "Yes" you? And are you quite sure that you don't encourage them to agree with you rather than speak straight up to you when they think you are wrong?

There is a suggestion here, too, for those who weakly and meekly "Yes" the boss.

"Yes-ing" pays nobody in the end.

HERBERT N. CASSON briefly stated that if cheapness were so important, there would soon be nothing left but peddlers and post cards. Quality in the end conquers cheapness. The best goods demand a good price, and while some shops may hold the public for a time, by pretending to combine high quality and low price, in the long run they are found out. During the past two years a great deal of trash has been eliminated from our markets, we hope, never to return. The Canadian people are willing to pay a fair price for a good article.

Meet Unjust Charges With Actual Facts

Prevalence of Public Charges Concerning Plumbers' Bills and Tendency Towards Negotiating Wage Levels to Reduce Building Costs Emphasizes Importance of Master Plumbers Having Accurate Records of Their Business—Personal Safety Likewise Demands Them

THE CONTINUED prevalence of unjust charges by the public concerning the remuneration which the plumber must secure for his work, and the tendency of the times toward negotiating wages in order to bring about lower costs, are two factors which make it absolutely necessary for the master plumber to keep at hand records of his business so as to be able to show readily that charges are not exorbitant. Some defence of the plumber's position has been made in a general way, but local figures are more effective in showing that excessive profits are not being made. It is unfortunate that the idea has become so general that plumbers charge as much as they figure they can get. For this reason a close study of the bookkeeping system and other accounting articles which have appeared in recent issues of Sanitary Engineer is urged. The bookkeeping system outlined was compiled by the Trade Extension Bureau of the U. S. after much research and meets the needs of a large number of master plumbers.

With such details at our command we are then well prepared to meet any and all accusations.

This applies to the smallest as well as the largest contractor. On big work, the public believes that competition usually forces prices down to the lowest point. Most of the criticism comes on charges for repair work that is done by the small contractor. It is therefore to his interest, most of all, to have a bookkeeping system that will enable him to immediately and accurately answer any question of costs and profits.

Individual Safety

There is another reason for having good accounting records that is equally important. As a matter of individual business safety, each one of us ought to know what progress he is making financially. Each one is in business to secure a profit, out of which to give his family more or less of the luxuries, as well as the necessities, of life. The game of business as it is played to-day, is such that every fair and possible advantage must be used. Only by having a complete and detailed knowledge of the result of our past efforts can we guide our future course. A proper bookkeeping system, not only gives us this information but enables us to secure it as often as needed. The old method of casting up accounts once a year will no longer serve. We must know, at least monthly, where we stand and in which direction we are headed.

The purpose of this article is to show why proper accounting methods are so essential, also to give certain tests whereby you may intelligently judge your present system, and find the things it lacks. This article will also enable you to correctly judge the merits of any bookkeeping system offered to you by those inside as well as outside of your organization.

Every subject, no matter how complex it appears, has certain simple principles easily understood by any man of average intelligence. These principles in bookkeeping can be made just as easy to see and understand for the Master Plumber as the principles of Sanitation can be made plain to the bookkeeper.

Learn Profits

We have seen that the purpose of a bookkeeping system is to learn our profits. To do this we must know our costs. Our profits at the end of any period, whether a week, a month or a year, are nothing more or less than an accumulation of the profits on the jobs we have done. We then come to the prime requisite of a good bookkeeping system: That on each and every job we do, our books must tell us our profit and likewise our cost.

So as not to depend entirely on a mere statement that any proposed bookkeeping system will do this, let us analyze the subject a little. We should be able to determine whether or not the methods of the proposed system are based on logical principles.

When we start to build anything we must first determine the purpose for which it is to be used. Then starting at the bottom we build step by step, with the ultimate purpose always in mind. So it is with a bookkeeping system. Knowing that a record of our costs and profits is the end to be attained, we begin by making sure that our job ticket will give us a record of the cost and profit on each individual job, and that a similar record of cost and profit is carried all the way through to the final trial balance.

The Job Ticket

The foundation of our bookkeeping system is the Job Ticket, on which is made the original record of the details of the job, and from which the balance of the records are made. Unless the foundation is right the whole structure is bound to be wrong. Unless this Job Ticket is arranged so that the cost and profit on each job can be determined when the job is finished, the system fails at the very start, and will never give satisfactory results. Therefore, when examining any bookkeeping system be sure to see that the Job Ticket provides the means for arriving at the cost of the job, and shows all the items included in that cost, namely: Labor, Material, Overhead and Miscellaneous Charges, such as Permits, Truck Service, etc.

With your costs on each job properly itemized you can arrive at any figures you desire. Without this information you can accomplish nothing in the way of keeping records that will give you the necessary facts of your business.

Accuracy of cost records is another vital point in any bookkeeping system. To know that your cost records are correct they must be a working part of your bookkeeping system, just as your records of Cash and Customers' Accounts are. Then, any inaccuracy in your cost records must show itself. The books will not balance properly until this inaccuracy in your cost record has been traced down and corrected. No man is infallible, and certain safeguards must be used to guard against errors. You have them when you make your cost records a part of your bookkeeping system.

Labor Costs

In a proper bookkeeping system, all the labor purchased through your Weekly Pay Roll is accounted for, because the total charged against the various jobs must equal the total amount of labor paid for and used on those jobs. The total amount of material shown as on hand, is arrived at by using the amounts charged to the various jobs. If you have taken the proper precautions, no material leaves your shop without a written record as to where it goes. This will assure you that your material cost on each job is correct.

Cotninued on page 34

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

BUSINESS CHANGES

Galt, Ont.—W H. Pinkett is going out of the plumbing business and is selling out supplies and equipment.

PERSONAL

George Scott was appointed convenor of the committee on sewers and sanitation for North Toronto, Ont.

OBITUARY

Kingston, Ont.—William Henry Carson, one of Kingston's most widely known citizens, passed away last week. He was apparently in the enjoyment of his usual state of good health just prior to his death and was actively engaged in his duties as city sanitary inspector, a position in which he rendered most efficient service to the city.

INCORPORATION

Samuel & Benjamin, Ltd., composed of S. Samuel, merchant, George T. Pepall, manager, C. Miller, H. M. Samuel and W. T. Louden all of Toronto and F. D. Benjamin of London, England, has been formed to purchase the business carried on in metals in Toronto under the firm name of M & L. Samuel Benjamin & Co. Capitalization of the new company is $2,000,000, head office in Toronto.

INSTALL ICE PLANT

The City Council at Toronto has decided to install an ice plant in the new Live Stock Arena, at the Exhibition Grounds, at a cost of $100,000. This will make the third artificial ice rink in the city, and will be the largest structure of its kind on the continent. The ice plant will be used for making ice for domestic purposes in the summer time.

FIRST OIL-BURNING HEATING PLANT

St. John, N.B.—Byrne & McGeouch, who have the sub-contract for the plumbing and heating of the quarantine station on Partridge Island, have received an oil-burning boiler which will be their first installation for oil fuel in this district. Kane & Parker are the general contractors and the boiler was supplied by E. Leonard & Sons.

The city council at London, Ont., will shortly consider the erection of a new registry office at a cost of $50,000. Mayor J. Cameron Wilson.

APPRECIATES SANITARY ENGINEER

The following excerpt is from a letter received by Sanitary Engineer this week.

Marsh & Scott,
Medicine Hat, Alberta.

The MacLean Publishing Co. Ltd.,
Toronto

We might state that we would not be without the "Sanitary Engineer" in our business.

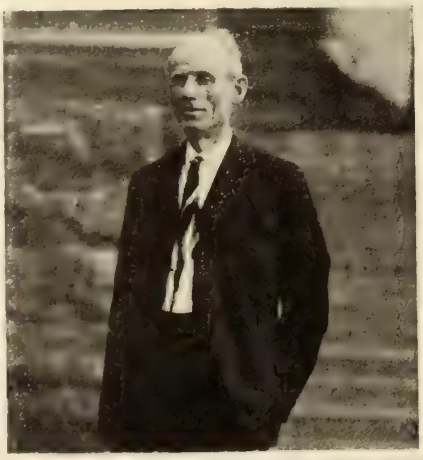
Wishing you the compliments of the season

Yours very truly
(Signed) J. F. Scott.

GOVERNMENT AGREES TO AID IN PETERBORO PUBLIC WORK

Peterboro, Ont.—An official approval of the sewer construction which has been laid out to relieve the unemployment in this city has been received from Hon. Mr. Biggs and the Government, according to its proposal to pay one-third of $5.799, the difference between the estimated cost of work under winter conditions, $21,816, and the estimated cost under normal conditions $16,016.

The trustees of S. S. No. 5 Riverside, Ont., Ervine Barnes, R. R. 5 Ailsa Craig, chairman, want prices and information regarding a water supply system for the school.



F. R. MAXWELL

Former President of the Canadian Society, Domestic Sanitary and Heating Engineers, who was re-elected alderman for Ward Eight, City of Toronto, at the recent municipal elections. Mr. Maxwell will again be identified with the local Board of Health

LOCAL PLUMBER PROTESTS

Victoria, B. C.—With the protest that the plumbers of Victoria had been working satisfactorily for the past thirty years under the provisions of the Municipal Act, and were now suddenly subjected to interference because of the making of on order-in-council, C. J. McDowell, of the firm of McDowell & Mann, paid a fine of $15, imposed by Magistrate Jay in the City Police Court, and gave notice that he would appeal from the conviction.

The charge, as laid by Building Inspector J. Barf, was that of a breach of the Board of Health regulations, in that the defendants had used too light a piping for plumbing connections. Mr. McDowell said that since the case was stood over, a week previously, the pipe had been changed for a heavier one. He questioned the powers of the municipality to obtain a conviction in this way. Magistrate Jay said that there had been a breach of the regulations, and the court must record a conviction.

SEWER CONTRACT

Montreal.—Tenders for the Hochelaga street sewer, one of the several which the City Council plan to construct through the winter months, showed a divergence of over $6,000 between the lowest and highest received. One party tendered for a price of $4,775, while the highest submission was for $11,500. Tenders were referred to the Director of Public Works for a recommendation.

ACTIVITIES OF OTTAWA SANITARY INSPECTORS

Ottawa.—Covering a great variety of different lines of work and investigations 23,420 different matters were attended to by the sanitary inspectors of the city health department according to the annual report for the departmental year ending Oct. 31st last, prepared by Mr. G. O. S. Laflamme, chief sanitary inspector. This has been presented to the Medical Officer of Health.

Of the 23,420 inspections and investigations, in 10,030 cases conditions were found sanitary; in 2,958 conditions were found insanitary and orders were given to remedy same or abate nuisances.

P. B. Fetterly, 201 Bridport St., London, Ont., wants prices on hot water heating, plumbing and electrical work in connection with new $12,000 residence to be erected in spring.

WESTERN ONTARIO NEWS

Prices are wanted immediately on both steam and hot water equipment in connection with $25,000 addition to the Institute of Musical Arts at London, Ont. Also on electric lighting. L. G. Bridgeman, Bank of Commerce Building, architect.

Plans are being prepared and tenders will be called in about a month for installation of new lavatories, shower baths and building of swimming pool 60 x 30 at the Technical School, London. Prices wanted on equipment. Watt and Blackwell, Bank of Toronto, London, architects.

W. H. Gurney, Wingham, Ont., is preparing plans for new business block and wants prices on hot air heating, plumbing and electrical equipment.

The trustees of the Public School at Wellesley, Ont., C.F. Ottman, chairman, want prices and information regarding indoor toilets which it is planned to install.

Plans are to be prepared at London, Ont., for a new suburban collegiate institute to cost $250,000. L. E. Carrothers Bd. of Education, architect. Prices will be wanted on steam heating, electrical work, plumbing and ventilating system.

William Cook, proprietor of the Richmond Hotel, has awarded contract for additional steam heating and radiation to the Helena Power Co.

Plans are being prepared at Preston, Ont., for $20,000 addition to school and prices are wanted on heating and plumbing equipment.

John Hayman & Sons are interested immediately in prices on steam heating equipment, plumbing and electrical work for 20 suite apartment which is contemplated.

William Skelly, 242 King St., London, was awarded plumbing and the McClary Mfg. Co., hot air heating for new $4,000 residence for A. E. White, 174 Langarth St.

The plant of the Meredith Foundry Co. at Dresdon, Ont., was completely destroyed by fire last week.

William Skelly, 242 King St., was awarded contract for plumbing for new $4,000 residence for A. E. White at London, Ont.

Prices on hot water heating, plumbing and electric lighting will be asked for shortly in connection with new $40,000 hospital to be erected at Aylmer, Ont., by the Memorial Hospital Association, H. E. Armstrong, secretary.

Joseph Condy, Walkerton, P. O. contemplates erection of new $4,000 residence in spring and is interested in prices of plumbing and heating equipment.

SEWER BY-LAW PASSED

Oshawa, Ont.—By-law authorizing construction of the Westmount sewer was passed, involving $10,000.

Contracts Awarded

Toronto, Ont.—Gordon Thompson, 40 Jarvis St., Toronto, is awarded general contract for construction of 6 in. water mains costing $32,000 for York Twp. Council.

Chicoutimi, Que.—Plumbing and heating contracts for addition to hospital costing $45,000 for Hotel de St. Vallier are awarded to Edgar Lepine.

North Toronto, Ont.—Contracts for erection of High School costing $160,000 for Bd. of Education, are: heating and plumbing, at $39,750, W. J. McGuire, 91 Jarvis St.

Verdun, Que.—Additional contracts for school costing $100,000 for Verdun School Bd., are: plumbing and glazing, Wm. Noseworthy, 165 Egan St., Verdun.

Victoria, B. C.—Plumbing and heating contracts for addition to hospital costing $107,986 for Royal Jubilee Hospital are awarded to Thacker & Holt, 620 Pandora Ave., at $62,108.

Toronto, Ont.—Heating and plumbing contracts for 3-suite apt. costing $10,000 for Mr. Kirsh, care of B. Swartz, architect, 336 Dundas St. W., are awarded to Danforth Plumbing Co., 267 Danforth Ave., and G. Leslie, care of architect.

St. Catharines, Ont.—Plumbing and heating contracts for residence for Mr. Vaughan, R. R. No. 1, are awarded to Bowman Bros., 32½ St. Paul St.

Halifax, N. S.—Plumbing contracts for residence for P. A. Lavers, 7½ Yale St., are awarded to Roy McKay, 145 South Kline St.

Halifax, N. S.—Roy McKay, 145 South Kline St., has plumbing contract for residence for C. E. Mersereau, 177 Henry St.

Montreal.—Additional contracts for residence for J. W. MacKenzie, 9 Stairs Place, are: Plumbing, W. S. Craig, Upper Water St.

Montreal.—Contracts for residence for F. Hiseler, 20 Willam St., are awarded to Roy McKay, 145 South Kline St.

Montreal.—Plumbing contracts for residence for W. F. Devan, care of builder, R. P. Bradley & Son, 90 Willow St., are awarded to W. S. Craig, Upper Water St.

Montreal.—Additional contracts for 8 residences costing $80,000 for L. P. Forest, 347 St. Joseph Blvd., are: plumbing fixtures, Jas. Robertson & Co., Ltd., 142 William St.

(Continued on Page 24)

W. M. Gartshore President McClary Mfg. Co.

T. G. Meredith, K.C., Fills Vacancy on Board of Directors Caused By Death of Late President John McClary—A. M. Smart is Vice-President and Treasurer

W. M. GARTSHORE

Appointed President and General Manager of The McClary Mfg. Co., Ltd., London, Ont., succeeding the late John McClary.

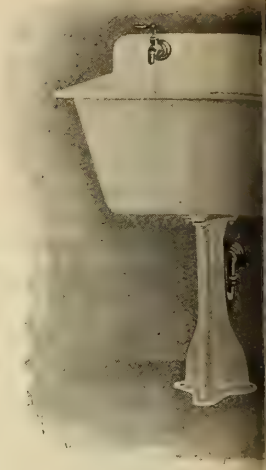
AT THE MEETING of the directors of the McClary Manufacturing Company, held at their head office in London, Ontario, W. M. Gartshore was appointed president and general manager, and A. M. Smart, vice-president and treasurer.

The vacancy on the board, caused by the death of the late president of the company, John McClary, was filled by the appointment of T. G. Meredith, K.C.

It is the intention of the directors, at the next meeting, to pass a by-law appointing another vice-president in the person of John McClary Gunn, assistant general manager.

The directors of the company are now constituted as: W. M. Gartshore, A. M. Smart, John McClary Gunn, John McClary Moore, T. G. Meredith, K.C., with J. K. H. Pope as secretary of the company.

At the recent installation of officers of the Masonic lodges at London, Ont., Ben Noble of the plumbing firm of Noble & Rich was installed as Director of Ceremonies for Union Lodge No. 380.



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In the past year statements have been made in various gatherings which prove that the medical profession fully realizes the importance of domestic sanitation. Some Canadian Universities now include in their curricula courses of domestic sanitation. On every hand are indications of a new attitude toward the plumber and his work.

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The aggressive Sanitary E
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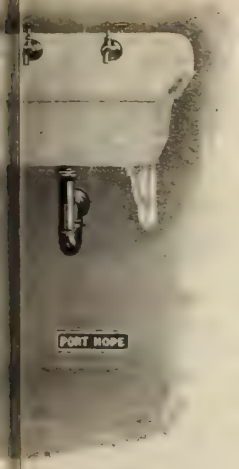
SUPERIORITY PURITY DURABLE AS THE PYRAMIDS



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will shape his policy to ne is a stepping stone to those materials that will on a strictly cost—plus— g strictly to a policy of l put this business on a erity just as inevitably as re raised year by year.

The public are now beginning to realize the importance of domestic sanitation. Plumbing was always considered a convenience. It added to physical comfort. But the public realization of the fact that proper plumbing installations not only are health preservers, but life savers, has been very recent indeed.

fg. Company, Limited

TORONTO

Vancouver Office:
325 HOWE ST.

Montreal Office:
604 SOUTHAM BLDG.

SUPERIORITY PURITY DURABLE AS THE PYRAMIDS

Plan Much Building in Western Ontario

Big Volume of Building is Expected to Start in Spring—Details of Some Important Projects.

LONDON, Ont.—Everything points to more building next spring than this city has ever known and the work includes some contracts of unusual interest to the sanitary engineers. The passage by the ratepayers of a grant of $250,000 to aid in the extension of the Western University means that work will be commenced as soon as possible on a group of buildings to cost $2,000,000. They will be of the most modern construction and will be heated by steam. A start will be made immediately in getting the ground ready and all preliminary work done so that construction may proceed as early as possible in the spring.

Another important project is the new $1,500,000 hotel to be erected by Canada Hotels, Limited. The contract for this has been awarded to the Anglin, Norcross Co., and as much work will be done as possible during the winter months and everything gotten ready for rushing the building to completion during the summer. It will be heated by steam and the plans include ventilating system and complete laundry.

The Board of Education plans to build at least two, and possibly three schools, the cost of which is estimated at $300,000. Plans for these, will be prepared shortly by the board's architect, L. E. Carrothers. Steam heating is contemplated for these buildings.

City Engineer Brazier is busy with plans for sewer extensions and new work that will call for an expenditure of approximately $400,000.

Architects report an unusually large number of inquiries for plans and information regarding home building. With lower prices for materials and labor costs reduced they expect that between $2,000,000 and $3,000,000 worth of new residences will go up. This years' total exceeds $2,500,000 and a great number of prospective builders held over their work owing to prices. There is hardly a house to be had here for rent, and no small or medium priced dwellings at all. Every apartment is spoken for months ahead. With a demand like this there is a profitable field for builders and many of them are already busy with plans. Mahaffy Bros. are getting ready to build forty medium priced homes, Hyatt, Bros., expect to build six or eight houses to run from $4,500 to $6,000 each. Thos. Coop plans to erect several homes to cost $3,000 each. John Putherbough stated to Sanitary Engineer that he plans to build three dwellings which will cost approximately $15,000. In addition to these John Hayman & Sons have plans for an apartment house to contain twenty suites.

Another big project that will likely develop in connection with the Western University is the seminary planned by Bishop Fallon. Plans for this are prepared but the work has been laid over owing to costs. The proposed seminary will cost at least $500,000 and the money for it has been obtained. Bishop Fallon stated recently that work will be started in the spring he expected on a large new church at Chatham, Ont.

Another Chatham project in which local capital is interested largely is the new ice cream and ice making plant to be built there by Silverwoods, Limited. President A. E. Silverwood stated to Sanitary Engineer that this would cost approximately $100,000 and that plans for the plant would be prepared shortly.

SHEET METAL EMPLOYERS STAND BY DECISION TO PAY 75 CENTS

Toronto.—Following a recent meeting of the sheet metal section of the Builders' Exchange formal notice was sent to the Sheet Metal Workers' Union, of the final offer of the employers with respect to wages for the present year. The offer made no change in the rate of 75 cents an hour set by the employers before, which was rejected by the union, the formal notice being given for the purpose of clearing up any misunderstandings as to the position of the members of the sheet metal section of the Exchange.

A meeting of the union held at the Labor Temple resulted in no change in the situation. Business Agent H. W. MacKay stated, at its conclusion, that the organization was pursuing the policy laid down by which an effort would be made to negotiate with the individual employers.

FROZEN PLUMBING AND WATER PIPES IN WINNIPEG

The Board of Health Bulletin of Winnipeg states a lot of the trouble now being experienced by owners and tenants and incidentally by the inspectors of the Health Department might be avoided by a little care and forethought.

In most cases the freezing occurs in lock-up stores where the occupants do not keep enough fire or where the fire is allowed to go out at night or on Sundays. This is of course done to save fuel. The Department cannot, however, permit this and will insist on the plumbing in such stores being kept in working order throughout the Winter.

It is interesting to note that in stores where groceries and articles which would be injured by cold are kept, we seldom find the water pipes frozen. It is in stores where clothing and similar goods are sold that the freezing occurs. This goes to show that the plumbing can be kept working if the tenant keeps enough heat in the premises.

A good way to prevent water pipes freezing at night is to turn off the water at the meter at night. If this is done, however, it is important to drain all the water from the pipes by opening one of the taps to let in the air. This drives the water out at the stop and waste cock, but if a tap is not opened the water will not drain out of the pipes and freezing may result.

Some of the older houses may be made much warmer and more comfortable by banking up around the outside walls with earth or ashes.

Cellar windows and coal chutes should be examined and made tight in order to prevent freezing of water pipes, especially in cellars without furnaces.

After a tenant has done all that he can it sometimes happens that a cellar is so cold that the plumbing freezes. If this occurs the Health Department officers will inspect on request and, if found necessary, notify the owner of the building, but this will only be done when the freezing is without doubt due to structural defects.

CONTRACTS AWARDED

(Continued from page 21)

Montreal.—Additional contracts for apt. house for J. Gersovitz, 1017 St. Urbain St., are: Plumbing and heating, J. Becker, 1439 St. Dominique St.

Montreal.—Additional contracts for 3 residences for J. M. G. Poirier, 37 Brisette St., are plumbing, E. Lalonde, 274 Rue Hadley.

Ottawa, Ont.—J. Phillips, 1005 Wellington St., has plumbing and heating contracts for residence costing $7,000 for E. A. Hodgson, 101 Melrose Ave.

Ottawa, Ont.—Plumbing and heating contracts for J. A. McMaster, 110 Sunnyside Ave., are awarded to Gervin & Hodgins, Bank and Sunnyside.

Ottawa, Ont. — Plumbing and heating contracts for residence costing $5,000 for D. H. Lancaster, Grenville Rd., are awarded to Gervin & Hodgins, Bank and Sunnyside.

Ottawa, Ont.—Additional contracts for residence costing $5,000 for C. Drewitt, Riverdale and Brighton are: heating, Pease Foundry Co., 287 Lyon St.

Ottawa, Ont.—Heating contracts for 2 residences costing $10,000 for A. A. Crawley, 192 Argyle Ave., are awarded Pease Foundry Co.

Toronto, Ont.—Plumbing contracts for 1 pair and 1 residence for J. Foley, 10 Keystone Ave., are awarded to Duffort Bros., 862 Kingston Rd.

Toronto, Ont.—Plumbing contracts for bungalow costing $7,500 for Edward Elridge, 40 Foxley St., are awarded to Geo. Atkinson, 766 Dovercourt Rd. Tenders will be received for heating.

Toronto, Ont.—Contracts for residence costing $16,000 for Mrs. J. J. Follett, care of architects, Molesworth, West & Secord, 43 Victoria St., are: sheet metal, A. Matthews, Ltd., 254 Adelaide W.; plumbing and heating, J. R. Honeycombe, 122 Yarmouth Rd.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

MARKETS AT A GLANCE

ANOTHER extensive budget of price changes on the current plumbing and steam-fitting markets, includes many a premier revision to lower levels. Through changing discounts, easier quotations are noted on eavestrough, both ridge roll and valley. A similar ten per cent. reduction is now evident on conductor piping. The easier tone in corrugated sheets has produced a new discount in certain quarters, while the decline in quotations on closet combinations, closet seats, and enamelled iron tanks attracts special attention.

Other items included in the lengthy list of price reductions are, the Penberthy line of brass valves, cotton waste, both white and colored; one line of gate valves; stove bolts; rivets and burrs; and Crescent wrenches. A new discount list has been issued on bolts and nuts. The lower range boiler list prices have now been generally adopted, while similar reduced levels have materialized on soil pipe and fittings, thus bringing quotations on this line of products to a more uniform basis than has been recently apparent.

Quietness is evident in the sheet markets, with little current business reported in radiators and boilers. The dull session continues in scrap materials, with the ingot metal markets still laboring under a slack demand.

MONTREAL MARKETS

MONTREAL, Jan. 14.—The opening weeks of the New Year continue to bring forth price revisions on many lines of plumbing and steamfitting supplies. A downward revision is announced on the Penberthy line of brass valves, and lower quotations on cement are now given. New lower cotton waste prices are now effective, the reduction varying on the different grades. A new list on bolts and nuts is issued, superseding list of October last, and all bolts,including stove and tire bolts, coach screws and nuts, are now lower in price, the reduction varying on the different classes. The discount on iron rivets and burrs is changed from 50 per cent. to 52 1-2 per cent. off list prices, while cap and set screws also show a reduction. New lower prices are now quoted on the various sizes of Crescent wrenches. There is practically no change in the prices of heavier lines, such as sheets, bar iron, enamelled ware, wrought pipe and fittings, radiators and boilers, range boilers and boiler tubes. Quotations on some of these lines are more or less nominal on the local market, and little marked change may be expected until more activity is shown in the earlier spring months.

PENBERTHY BRASS VALVES NOW QUOTED LOWER

Montreal.

A downward revision is announced in quotations on the Penberthy line of brass valves and following are the new discounts;

Gate valves	33 per cent.
Regrinding valves	20-10 per cent.
Swing check valves	10 per cent.
Compodisk valves	20-10 per cent.

COTTON WASTE PRICES RECORD DOWNWARD REVISION

Montreal.

Quotations on cotton waste and wool packing are revised to lower levels, but wipers remain unchanged. Cream polishing is reduced one cent per pound, while in whites, the higher grades are quoted one-half cent lower and the cheaper qualities from 1 to 1½ cents less. Wool packing prices show a more substantial reduction of from 2 to 5 cents per lb. according to quality. The cotton market has for some time past not been displaying the firm tone that was evident a few months ago, and lower waste prices now do not come as much of a surprise, in fact dealers anticipated a change early in the New Year. Revised prices are as follows;

COTTON WASTE—Cream polishing, 19c per lb.
White—XXX extra, 16c; XX grand, 15½c; XLCR, 14½c; X Empire, 13c; X Press, 11½c.
Colored—Fancy, 13½c; Lion, 12c; Popular, 9c; Keen, 7½c.
Wool Packing—Arrow, 25c; Axle, 22c; Anvil, 18c.
Dominion Wipers—White cotton, 20c; colored cotton, 14c.

CRESCENT WRENCHES SHOW SLIGHT REDUCTION

Montreal

New prices are now quoted on Crescent pattern wrenches, a slight reduction having been made in the various sizes. The 4 and 6 inch will now cost $8.00; 8 in. $10; 10 in. $12.50 a dozen.

CAP SCREWS AND SET SCREWS AT REVISED DISCOUNTS

Montreal.

Through increasing the discounts on square and hexagon cap screws, and set screws, these will now sell for less. Square and hexagon cap are now quoted less 50 per cent., set screws less 55 per cent.

IRON RIVETS AND BURRS HAVE NEW DISCOUNTS

Montreal.

A slight reduction has been made in quotations on iron rivets and burrs. Discounts in each case have been changed from 50 per cent. to 52½ per cent. off list prices. Extras remain as formerly.

VERY LITTLE INTEREST IN SCRAP METALS

Montreal.

The scrap markets fail to show any improvement, and dealers now look for a more or less dull period during the winter months. While there was a slight revival in these markets late last fall, it was not for long standing, the winter weather causing a cessation of activities. Quotations are nominally unchanged, with dealers anticipating little change during the quiet months, they now realizing that price is not a factor either assisting or obstructing a more active market.

SCRAP—

Automobile tires	0 75
Rubber Shoes	0 03
Yellow brass	0 05
Red brass	0 09
Light brass	0 03¼
Scrap zinc	0 03 0 03¼
Lead, heavy	0 04¼
Lead, tea	0 02½
Light copper	0 08
Heavy copper	0 10½
Wrought iron, R.Rd., No. 1 per gr. ton	10 50
Malleable scrap (ton)	8 00
Pipe scrap (ton)	6 50
Heavy melting steel	7 50 to 8 00
No. 2 busheling	4 00
Boiler plate	8 00
No. 1 machinery cast	21 50

LOWER WIRE SOLDER PRICES FOR QUANTITY BUYING

Montreal.

Current quotations on wire solder are recorded with a considerable reduction from those appearing in recent weeks. The net price on this class of solder is really unchanged, but a larger differential is now given for quantity buying. Formerly the higher quotations were given, and concession made for orders of fair quantities, but because users of wire solder usually buy in large quantities, it is now thought best to use lower level, and charge the extra for small orders.

The undertone of the lead products market as a whole does not display the same amount of firmness that was evident a few weeks ago, metals in primary markets showing slightly weaker with lower quotations appearing on some lines. However, for the present, other lines are unchanged, with the demand still quiet. Following are present prices;

Lead pipe, per 100 lbs.	12 50
Lead waste, per 100 lbs.	13 50
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	10% off
Lead wool, lb.	0 13½
Lead sheets, 2½ lbs.	0 10½
Lead sheets, 3 to 3½ lbs., sq.	
Do., 4 to 8 lbs., sq. ft.	0 09½
ft., lb.	0 10¼
Cut sheets ¼c lb. extra and cut sheets to size, ¾c lb. extra.	
Solder, guaranteed, lb.	0 28½
Do., strictly, lb.	0 26½
Do., commercial, lb.	0 23½
Do., wiping, lb.	0 24½
Do., wire, lb.	0 32½
Zinc, sheets, casks	0 11½

NEW LOWER QUOTATIONS ANNOUNCED ON CEMENT

Montreal

It was announced in the last issue that new lower prices would shortly be given on Portland cement. Effective from the first of the year a decline of approximately 7 per cent. is made. Current business remains seasonably quiet, but a revival of trade is looked for in the near future as a good amount of building is now under construction. Following are revised quotations.

CEMENT Car load lots—	
Per bag, f.o.b. cars	0 92
Per bag, delivered	1 00
Less car lots—per bag, f.o.b. yard	1 00
Per bag, delivered	1 10
Less 5 per cent.	
Rebate of 20 cents for empty bags.	

RANGE BOILER PRICES STILL BEING SHADED

Montreal

With sales of range boilers still of a small order, quotations are nominally unchanged, but price-shading continues among local distributors. The present quiet period does not offer much assistance in improving this situation, dealers being anxious to obtain orders, even with a considerable price concession. It is the opinion of some that increased volume of trade in the early spring months will remedy the matter, and stocks will by that time have become depleted. Others again admit they cannot find a solution for the problem, and it is their belief that much the same condition will prevail until dealers in general are willing to sacrifice their profit on boilers, and this may be a slow road to recovery from the present state of affairs. The most general quotation on the 30 gallon boiler is $8.75, with the following prices on other sizes;

RANGE BOILERS—	Std.	Ex. Heavy
30 gallon	8 75	11 25
35 gallon	11 25	13 50
40 gallon	13 50	16 00
52 gallon	20 00	24 50
66 gallon	28 00	34 00
82 gallon	35 00	46 50
100 gallon	45 00	55 00
120 gallon	54 00	63 25

BOLTS AND NUTS ARE AGAIN REDUCED

Montreal.

Superseding list of October last, a new list on bolts and nuts is now issued to the trade. Revised discounts record a reduction of varying extent on practically all kinds, plow belts being the only class not showing a decline in prices Following is new list;

BOLTS AND NUTS

Discounts apply to standard list.
Carriage bolts ($1 list), ⅜ in. dia. and smaller, 6 in. and shorter, 47½ per cent.
Carriage bolts ($1 list), ⅜ in. dia. and longer lengths, 40 per cent.
Carriage bolts ($1 list), 7-16 in. dia., and larger, 40 per cent.
Machine bolts, ⅜ in. dia. and smaller, 4 in. and shorter, 55 per cent.
Machine bolts, ⅜ in. dia. and smaller longer lengths, 42½ per cent.
Machine bolts, 7-16 inch dia. and larger, 42½ per cent.
Sleigh shoe bolts, all sizes, 30 per cent.
Coach and lag screws, 55 per cent.
Bolt ends, 42½ per cent.
Square head blank bolts, 42½ per cent.
Plow bolts, 1, 2, 3 head, 35 per cent.
Plow bolts, others, 35 per cent. disc. plus 20 per cent.
Elevator bolts, large heads, 30 per cent.
Elevator bolts, corrugated heads, 60 per cent.
Fancy head bolts, 30 per cent.
Shaft bolts, ($3 list), 30 per cent.
Step bolts, large head ($3 list), 30 per cent.
Whiffletree bolts, 30 per cent.
Tire bolts, 62½ per cent.
Stove bolts, 72½ per cent.
Nuts, 2 in. and smaller, square, blank, off net list, $1.25.
Nuts, 2 in., and smaller, square, tapped, 75 per cent. off.
Nuts, 2 in., and smaller, hexagon. Blank, 75 off; tapped, 25 off.

VALVES AND BIBBS RECORD NO PRICE CHANGE

Montreal

All lines of valves and bibbs are remaining unchanged in price locally, with sales of small but sorting nature. A gradual improvement is now looked for as inventories should result in increased sales, stocks being undoubtedly low among dealers. Unchanged discounts are the following;

COMPRESSION WORK—	
Compression work, standard	43%
Fuller work, standard	30%
Bath cocks, compression	30%
Basin cocks, Fuller No. 0	30%
Do., Nos. 1 and 2	30%
Flatway stop and waste cocks, standard.	54%
Roundway stop and waste cocks, std.	46%
Brass steam cocks, standard.	40%
Radiator valves, standard	58%
Do., removable disc	58%
Globe, angle and check valves, standard	20%
Gate or straightway	16/10%
Emco Globe Valves	20%
Emco check valves	20%
Jenkins Globe, angle, check and swing check	19%
Jenkins gate or straight way	25%
Jenkins iron body, globe and angle	15%
Jenkins iron body gate	33%

SOIL PIPE FITTINGS QUOTATIONS UNCHANGED

Montreal

Current quotations on soil pipe and fittings continue unchanged, with the movement of these products now seasonal. With the present closed winter weather little activity can be expected, but dealers anticipate a good opening in the spring months, building construction assisting in this direction. Although there is no immediate sign of revised prices, it is generally admitted that competition is holding prices at their present low level, and increased activity a little later may be the factor in increasing quotations. Following are prevailing discounts;

SOIL PIPE—	
2 and 3 inch	47½%
4 inch	50%
5 and 6 inch	47½%
Fittings—	
2 to 6 inch	50-10%
Do., broken lots	0 12

PIPE FITTINGS REMAIN AT UNCHANGED DISCOUNTS

Montreal

The various lines of pipe fittings remain at unchanged quotations, with little change also recorded in the market as a whole. Sales are of fair volume for this season, with a gradual improvement looked for now that inventories are taken and supplies will be required for the earlier spring work. Unchanged prices and discounts are as follows;

PIPE FITTINGS—	Per Cent.
Cast iron fittings	25
Bushings, cast	27½
Bushings, malleable	25
Flanges	37½
Plugs	27½
Flange unions	22½
Malleable unions	42½
Dart unions, black	33
Do., galvanized	13
Nipples, ⅛ to 4" close and short	50
Do., long	60
Do. 4½ to 8" close and short	40
Do., long	50
Couplings, 4" and under	30
Do., 4½" and larger	10

Pound Goods —	Blk.	Galv.
Class A	0 53	0 65
Class B	0 21½	0 28¼
Class C	0 14	0 21½

ONLY MODERATE SALES OF ENAMELLED WARE

Montreal.

With quotations on the various lines of enamelled ware remaining at the revision of December last, business is now of a quiet nature, although not unusually so for this season. Local distributors anticipate a gradual improvement as the weeks pass as present building construction is being carried out in fair volume, and further activity is promised for the spring months. Following are list prices and present discount;

	1 only	2 only	3 only
Sinks, roll rim—			
18 x 30			$23 00
Sinks, flat rim—			
16 x 24	$ 7 50	$ 7 40	$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide			51 40
Bath tubs, 5½ feet			57 10
Lavatories—			
17x19 in. Apron F139 or P4045			15 30
18x24 in. Apron F154 or P3845 or P3847			23 60
18x21 in. Apron F169 or P4205			17 60
17x19 in. Roll rim, F241 or P4345			12 60
Less 33 1-3 per cent.			

MORE SETTLED SHEET MARKET LOOKED FOR

Montreal

With current business in sheets now quieter, there is an effort being put forth to stabilize the market, and have quotations on a more uniform basis among the various jobbers and distributors. For some time past it has been necessary to show a range in quoting prevailing prices because of the variation existing in jobbing circles. Dealers admit that during the past few months competition was met, and in some instances orders have been taken at ridiculously low prices, in many cases showing little or no profit for the jobbing house.

It is now considered the opportune time to remedy this situation, and it is hoped that within the very near future an improvement will be noted, and prices set within reasonable reach of replacement values. Optimism is again expressed for the following months, and although sales are not at present over plentiful, the end of the month is looked upon by some as the close of the now more inactive period. Quotations are still nominally unchanged as follows;

BLACK SHEETS—		
10 gauge	4 00	4 50
12 gauge	4 10	4 60
14 gauge	4 40	4 70
16 gauge	4 50	4 80
18-20 gauge	4 55	5 05
26-gauge	4 60	5 20
22-24 gauge	4 65	5 25
28 gauge	6 35	7 20
GALVANIZED SHEETS—		
10¾ ounce	6 75	7 60
28 gauge	6 30	7 20
26 gauge	6 05	6 85
22-24 gauge	5 90	6 60
20 gauge	5 75	6 45
18 gauge	5 75	6 35
16 gauge	5 60	6 35
14 gauge	5 45	6 35
12 gauge	5 30	6 35
10 gauge	5 20	6 35
English Standard—	Queen's Head.	Fleur-de-lis
28 gauge	8 25	7 75
26 gauge	8 00	7 50
24 gauge	7 40	7 10
22 gauge	7 05	6 65
18-20 gauge	6 35	6 50

NOTE—These prices are for full bundles; an extra charge of 25c to 35c per 100 lbs. is made for broken lots. Extra for sheets 4 ft. wide, 50 cents per 100 pounds. Extra for sheets 3 ft. wide, 28 ga. and 10¾ oz. 25 cents per 100 lbs.

CANADA PLATES—	
Dull.	
18 x 24 x 52s	5 60
18 x 24 x 60s	5 80
18 x 24 x 75s	6 10
WELSH CANADA PLATES—	
Polished.	
18 x 24 x 52s	8 25
18 x 24 x 60s	8 50
BRIGHT TIN PLATES	
20 x 28 x 100 lb. bases	17 50
20 x 28 IC., 112s	18 00
20 x 28 IX, 112s	20 00
20 x 28 IXX, 50s	11 25
20 x 28 IXXX, 56s	12 00
TERNE PLATES	
20 x 28 IC, 112s	17 50

NO CHANGE RECORDED IN CORRUGATED SHEETS

Montreal

Although there is a slightly easier tendency in the corrugated sheet market, due to the position of plain galvanized sheets at the present time, where lower prices have been made without any corresponding decline in corrugated prices remain unchanged. Dealers are now mostly interested in bringing the local market to a more stabilized condition as regards prices. For some time past quotations have been more or less nominal locally, and certain price concessions have been offered to secure business. It is now felt that this should be remedied before the more active period in the following months, and an effort is now being put forth to improve this condition. For the present, following are list prices and discount;

CORRUGATED SHEETS—	Per 100 sq. ft.
No. 28 gauge	6 50
No. 26 gauge	7 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50

Less 7½%.

Lighter than 24 gauge and wider than 27 inches, 75c a square extra.

NO FURTHER CHANGE RECORDED IN WROUGHT PIPE

Montreal.

Quotations on wrought iron and steel piping remain at list No. 54, effective the latter part of December. A fair volume of business is recorded, which is now expected to improve as the opening weeks of the year pass. Following is list No. 54;

WROUGHT PIPE

Price List No. 54. December 22, 1921.

Standard Buttweld Pipe S/C

Size	Steel Blk.	Steel Galv.	Gen. Wrot. Iron Blk.	Gen. Wrot. Iron Galv.
⅛ in.	$6 00	$ 8 00	$	$ ....
¼ in.	3 84	5 94	7 20	9 30
⅜ in.	3 84	5 94	7 20	9 30
½ in.	4 85	6 46	7 31	8 93
¾ in.	5 87	7 71	8 86	10 70
1 in.	8 16	11 05	12 58	15 30
1¼ in.	11 04	14 95	17 02	20 70
1½ in.	13 20	17 88	20 35	24 75
2 in.	17 76	24 05	27 38	33 30
2½ in.	28 08	38 03	.....	.....
3 in.	36 72	49 73	.....	.....
3½ in.	47 84	63 48	.....	.....
4 in.	56 68	75 21	.....	.....

Standard Lapweld Pipe S/C

Per 100 feet.

Size.	Steel Blk.	Steel Galv.	Gen. Wrot. Iron Blk.	Gen. Wrot. Iron Galv.
2 in.	$21 46	$27,38	$31,08	$37 00
2½ in.	31.50	40 05	46 80	56 16
3 in.	41 31	53 55	61 20	73 44
3½ in.	48 76	65 32	72 68	89 24
4 in.	57 77	77 39	86 11	105 73
4½ in.	66 04	86 36	1 04	1 24
5 in.	76 96	100 64	1 21	1 45
6 in.	1 00	1 31	1 57	1 88
7 in.	1 33	1 76	2 02	2 45
8L in.	1 40	1 85	2 13	2 58
8 in.	1 61	2 13	2 45	2 97
9 in.	1 97	2 59	2 97	3 59
10L in.	1 82	2 40	2 75	3 33
10 in.	2 35	3 09	3 54	4 28

LITTLE IMPROVEMENT NOTED IN BOILER TUBE MARKET

Montreal.

Boiler tubes still display very little activity on the local market, sales are small and cover supplies for repair work only. Quotations remain unchanged as follows;

BOILER TUBES—	Seamless	Lapweld
1 inch	24 70	.....
1¼ inch	24 50	.....
1½ inch	24 00	.....
1¾ inch	26 00	26 00
2 inch	24 50	20 50
2¼ inch	27 75	23 50
2½ inch	32 50	24 50
3 inch	40 00	30 50
3½ inch	52 50	34 75
4 inch	65 00	44 00

CLOSET OUTFITS RECORD ONLY FAIR SALES

Montreal.

Current trade in closet outfits is now only of a fair volume although slightly improved over the past few weeks of the holiday and inventory period. Distributors look for better business from now on, as building construction promises well for the ensuing months, especially buildings of the smaller class. Prevailing quotations are as follows;

CLOSET OUTFITS—	
Closet, standard outfit	27 50
Do., with post hinge seat	28 50
Do., white vitro, vitreous china or enameled iron, with wash-down bowl and oak or mahogany post hinge seat	30 50
Do., reversible trap bowl, less spud	12 75
Do., add for siphon jet bowl	7 00
Do., for ⅜ in. valve on supply pipe	1 50
Do., deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	10 50
Do., reversible trap bowl, less spud	11 50
Do., siphon jet bowl, less spud	19 00
Do., "Richelieu" bowl	9 00
Do., extra for spud	0 60
Do., oak, or oak-vitro tank, with fittings, less seat	14 25
Do., wood strip seat and cover	3 55
Do., post hinge seat and cover	4 25
Do., add for bar hinge	No extra
Do., white vitro, vitreous china, or enameled iron tank, with fittings, flush elbow and supplies less seat	18 50
Do., Vitrious China	20 00

BOILERS & RADIATION UNCHANGED AT RECENT PRICE DECLINE

Montreal

No further change is recorded in boilers and radiators since the revision of January 1st when a reduction was announced on both lines. There is a fair amount of business in evidence as building construction is being carried out on a fairly active stage considering the season of the year. Further improvement is looked for as the season advances as contemplated building promises well for the spring and summer months. Following are list prices and discounts;

Radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

45 in. to 38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60. Discount, 59% for hot water and 60% for steam.

Wall Radiators—5 ft., $1.15; 6 ft., $1.10; 7 ft., $1.05; 9 ft., $1.05; 12 ft., $1.05. Discount 56%.

Boilers.—Round hot water boilers, low base only (high base discontinued) sizes from 0 to 10, 64 per cent. off list.

Square or sectional hot water or steam boilers, 15-in., 20 per cent.

For Ontario Government trimmings add 5 per cent.

Square or sectional water boilers, 19-in to 36-in. 20 per cent. off list.

Square or sectional steam boilers, 19-in. to 36-in., 20 per cent. Ontario Govt. trimmings, 10 per cent.

Round steam boilers, standard trimmings, 28 per cent. off. Ontario Government trimmings, 25 per cent.

All prices f.o.b. Toronto, Montreal, Guelph, Hamilton, St. Catharines or Brantford.

BAR IRON AND STEEL PRICES REMAIN UNCHANGED

Montreal.

Current business in bar iron and steel is still of a quiet nature, although not exceptionally so for this season of the year. Dealers look for a gradual improvement in the coming months, both stocks and prices being much more fav-

ourable for increased trade than twelve months ago. There is yet little sign of construction requiring the larger supplies, but it is still early and it is thought that a decided turn for the better will be taken later in the spring months. Following are unchanged prices;

IRON & STEEL -

Common bar iron, 100 lbs.	2 90
Refined iron	4 40
Iron finished machinery steel	2 95
Mild steel	2 90
Single reeled machinery steel	4 75
Band steel	2 90
Spring steel	4 50
Sleighshoe steel	2 90
Tire steel	3 10
Toe calk steel	3 80
Harrow tooth steel	3 05
Mining teeth steel per lb.	0 22
Black Diamond tool and cast steel	0 42

NOTE—Refined iron is approximately $1.50 per 100 lbs. over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs. extra.

METAL MARKETS ARE AGAIN SOMEWHAT EASIER

Montreal.

Metal markets generally have been somewhat easier during the past week, and prices have receded slightly. There is no marked weakness, but the market has been sagging and it would not be surprising if lower prices were registered in some lines.

TIN—Owing to heavy shipments from the Straits the London market has been easier in tone, and from all appearances will be lower still. Available supplies are very heavy and demand is not very great at present. Quotation is slightly easier at 38 cents.

COPPER—Producers' prices in U.S. A. are still nominally unchanged, but business may be done at a shade less. The London market is also lower on both standard and electro. Locally prices are unchanged at 17¾ cts. for electro, 17 cts. for casting.

LEAD—The American market is firm and as the local market is based on American prices, the situation here is firm. London is steady but prices have only a nominal bearing locally. It would not be surprising to see higher prices in the near future. Local price unchanged at 7 cents.

SPELTER—This metal is considered fairly cheap to-day and higher prices are anticipated over the next few months. The London market is slightly easier, but this is only considered temporary. Local price 7½ cents.

ALUMINUM—This metal continues to this metal, but prices, if anything are slightly easier, especially for import lots. Chinese is quoted at 6¾ cents, high grade English 7¾ cents.

ALUMINUM—This metal continues to show an easier tendency, and while quotations are for the present unchanged, lower prices would not be surprising in the near future. Present quotation, 26 cents.

TORONTO MARKETS

TORONTO, Jan. 14.—Another extensive budget of price developments is apparent on the current markets. Closet combinations, closet seats and enamelled iron tanks are recorded with easier price levels. Cotton waste prices, both white and colored, are revised downward, while a similar recession is noted in eavestrough, both ridge roll and valley. Conductor pipe records a decline of 10 per cent., with a revised discount having been announced on the J. M. T. line of gate valves. Reductions are also prominent on the Penberthy line of brass valves, while a change in the discount on corrugated sheets is evident in some quarters. The lower range boiler list prices have been generally adopted, together with easier levels materializing on soil pipe and fittings, thus bringing quotations on these products to a more uniform basis. Other decreases noted are on Crescent wrenches, and stove bolts, while a new discount list has been issued on bolts and nuts.

Little business is reported in radiators and boilers, with the quiet session still evident in the sheet market. Marked activity is noted in the tin plate industry. The dull period continues in scrap materials, with slackness in demand still featuring the ingot metal markets.

NEW DISCOUNT LIST NOTED ON BOLTS AND NUTS

Toronto.

Among the numerous price developments recorded on the New York markets, is the revision in discounts on bolts and nuts. Both carriage and machine, as well as miscellaneous bolts, appear with lower quotations through increasing the discounts. The revision is of varying extent on the different products. Both square and hexagon, black and tapped, are also noted with easier price levels. The complete list of changes follow:

BOLTS AND NUTS—

Discounts apply to standard list.
Carriage bolts ($1 list), ⅜ in. dia. and smaller, 6 in. and shorter, 47½ per cent.
Carriage Bolts ($1 list), ⅜ in. dia. and longer lengths, 40 per cent.
Carriage Bolts ($1 list), 7-16 in., dia., and larger, 40 per cent.
Machine Bolts, ⅜ in. dia. and smaller, 4 in. and shorter, 55 per cent.
Machine Bolts, ⅜ in. dia. and smaller, longer lengths, 42½ per cent.
Machine Bolts, 7-16 inch dia. and lrager, 42½%.
Sleigh Shoe Bolts, all sizes, 30 per cent.
Coach and lag screws, 55 per cent.
Bolt ends, 42½ per cent.
Square head blank bolts, 42½ per cent.
Plow bolts, 1, 2, 3 head, 35 per cent.
Plow bolts, others, 35 discount, plus 20 per cent.
Elevator bolts, large heads, 30 per cent.
Elevator bolts, corrugated heads, 60 per cent.
Fancy head bolts, 30 per cent.
Shaft bolts, ($3 list) 30 per cent.
Step bolts, large head, ($3 list) 30 per cent.
Whiffletree bolts, 30 per cent.
Tire bolts, 52½ per cent.
Stove bolts, 72½ per cent.
Nuts, 2 in. and smaller, square, blank, off net list, $1.25.
Nuts, 2 in., and smaller, square, tapped, 75 off.
Nuts 2 in., and smaller, hexagon.
Blank, 75 off.
Tapped, 25 off.
Hexagon—Terms—Cash in 30 days from date of shipment, less 2 per cent.

LOWER QUOTATIONS ALSO APPEAR ON STOVE BOLTS

Toronto.

Quotations on stove bolts are also revised in the downward direction, in conjunction with changes which appear on other makes and styles of bolts. The new discount is 72½ per cent., compared with the previous figure of 67½. This reduction, therefore, is in the neighborhood of 16 per cent.

LOWER LEVELS MATERIALIZE ON SOIL PIPE AND FITTINGS

Toronto.

The anticipated readjustment in the local quotations on soil pipe and fittings has now materialized. The revised price levels, however, are still somewhat above the quotations which have recently prevailed in eastern markets, but it is stated that the current changes are in keeping with the present production costs, and that other levels indicate an unusual situation. On some sizes of pipe a decrease of 25 per cent. is noted, while the local quotation on fittings is now 50 and 10 per cent., compared with the previous figures of 40 and 10. Following are the latest revisions:

SOIL PIPE—

2 inch	40 per cent.
3 inch	40 per cent.
4 inch	40-5 per cent.
5 and 6 inch	40 per cent.
8 inch	net

FITTINGS—

2 to 6 inch	50-10 per cent.
8 inch	net

LOWER RANGE BOILER LIST NOW GENERALLY ADOPTED

Toronto.

As pointed out in previous issues of Sanitary Engineer there has recently been a strong tendency to drop back to the $8.75 level on the 30-gal'on standard range boiler. With this situation being generally evident, a new lower list has been adopted by some distributors, showing an easier range of prices on these produc's. There is stated to be only a small sale for boilers during the current season, but the movement to shade the nominal levels has been evident for some weeks. Following is the list now being generally recognized as the prevailing market values:

RANGE BOILERS—

Size.	Standard.	Ex-Heavy.
30-gallon	$ 8 75	$11 25
40-gallon	13 50	16 00
52-gallon	20 00	24 50
66-gallon	28 00	34 00
82-gallon	35 00	4 50
100-gallon	45 00	55 00
120-gallon	54 00	63 25
144-gallon	78 00	93 00

(Continued on page 30)

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TORONTO MARKETS

(Continued from page 28)

REVISED DISCOUNT NOTED ON GATE VALVES

Toronto.

Current prices on valves and compression work are mostly stationary at the recently revised levels, with the exception, however, of the J. M. T. line of gate valves. The discount on these products has been revised, with the result that prices are now 10 per cent, lower than formerly. Business in these products is described as quiet, a condition which is considered more or less usual at this season of the year. Many firms have been engaged upon the annual inventory, and consequently little variation in the prevailing degree of market activity has been recorded. Following are current changes.

VALVES—	Per cent.
Compression work, standard	43
Fuller work, standard	30
Bath cocks, compression	32
Do., Fuller	25
Flatway stop and wastecocks, stand'd	54
Roundway stop and waste cocks, std.	46
Brass steam cocks, standard	40
Globe, angle and check valves, std.	20
Mueller globe, angle and chceck	20
Mueller composition disc steam valves	20
J. M. T. valves, screwed	20|10
J. M. T. C., screwed	25|10
J. M. T. gate valves, screwed	25|10
Jenkins gate or straightway, screwed	25
Jenkins globe, screwed	19
Radiator valves, standard	58
Do., removable disc	58
Emco, J. D. valves, screwed	20
Emco, check valves, screwed	20
Webber gate valves, screwed	25
Emco, Globe valves, ¼" to 2", screwed	30
Emco, Globe valves, 2½" to 3", screwed	20
Basin cocks—	
No. 0 and 1, Fuller pattern	30
Quick opening No. 3633	43

COTTON WASTE PRICES REVISED TO LOWER LEVEL

Toronto.

Easier prices have now been announced on both white and colored cotton wastes in all grades. The decline varies between a ½-cent and one cent per lb. on the different grades, with a similar ½-cent decrease on cream polishing waste. While the raw cotton markets are temporarily fairly steady, they have recently been in a more or less unsettled condition, and the easier trend of quotations on cotton wastes is attributed to the lowering of costs in the various contributory elements in these markets. Following are the current revisions:

WASTE Cream, polishing, per lb., 19c.

White, cotton, XXX, 18c per lb.; XX, 16c; X, 15c; SC, 14c; XXX, Extra, 16¼c; XX Grand, 15½c; gLCR, 14½c; % Empire, 13c; X Press, 11½c.

Colored, cotton—Fancy, 13½c per lb.; Lion, 12c; Standard, 10½c; Popular, 9c; Keen, 7½c; No. 1, 13c; No. 7,12c; No. 1A, 11c; No. 1B, 10c.

Above lines subject to trade discount for quantity.

CRESCENT WRENCH PRICES ARE SLIGHTLY REDUCED

Toronto.

New prices are given on the Crescent pattern wrenches, a slight reduction having been made in the various sizes. Following are new prices:

CRESCENT WRENCHES—4 and 6 inch, $8; 8 in., $10; 10 in., $12.50 dozen.

DECLINE IN QUOTATIONS ON CLOSET COMBINATIONS

Toronto

A reduction has been recorded in prices on low down closet combinations, with a similar decrease noted on closet seats, and also the enameled iron closet tanks. The decline on combinations is approximately between 7 to 8 per cent., while the downward revisions in closet seat prices are of a more marked nature. This change follows on the recent decline which was recorded in enamelled ware products a few weeks ago. Following are the new net prices:

CLOSET COMBINATIONS, low down	each
Closet, standard outfit, oak	$26 00
Do., with post hinge seat	26 75
Do., mahogany Vitro or Pussyfoot, with mahogany post hinge seat and cover	28 75
Do., vitreous china, with oak post hinge seat and cover	29 25
Do., vitreous china, with mahogany post hinge seat and cover	29 50
Do., white Vitro or Pussyfoot, with maoak post hinge seat and cover	29 25
Do., white Vitro or Pussyfot, with mahogany post hinge seat and cover	29 50
Do., enamelled iron tank with oak post hinge seat and cover	29 25
Do., enamelled iron tank with mahogany post hinge sea and cover	29 50
Additions or reductions to above	
Add for reversible trap bowl	1 25
Add for syphon jet bowl	7 00
For ⅜ in. valve on supply pipe	1 50
Deduct for supply pipe	0 70
Deduct for floor flange and bolts	0 80
CLOSET BOWLS—	
Washdown bowl, less spud	10 00
Reversible trap bowl, less spud	11 25
Syphon jet bowl, less spud	17 00
"Richelieu" bowl	10 50
CLOSET TANKS, low down	
Oak, Vitro or Pussyfoot tank with fittings, less seat	13 10
White Vitro or Pussyfoot tank with fittings, flush elbow and supply	15 25
Vitreous china tank with fittings, flush elbow and supply	18 00
Enamelled iron tank with fittings, flush elbow and supply	18 00
CLOSET SEATS—	
Oak wod srip seat and cover	3 25
Oak post hinge seat and cover	4 00
Mahogany finish post hinge seat and cover	4 25

DOWNWARD REVISION IN EAVES-TROUGH AND PIPE

Toronto.

Revised discounts are now quoted on both eavestrough and conductor pipe. The revision is approximately a decline of 10 per cent., this quotation having been added to the current figures. This change applies to both ridge roll and valley eavestrough, and conductor piping, but quotations on elbows remain unchanged. Following are the list prices and discounts:

TROUGH (EAVE)— O. G. Square Bead and half round. Size in girth:	Per 100 ft.
8 in.	15 90
10 in.	17 70
12 in.	21 20
15 in.	28 80
18 in.	36 50
Less 70 and 10 per cent.	
PIPE (CONDUCTOR)— Plain, round or corrugated.	**Per 100 ft. in 10 ft. lengths.**
2 in., in 10 ft. lengths, list	18 40
3 in., in 10 ft. lengths, list	23 30
4 in., in 10 ft. lengths, list	29 60
5 in., in 10 ft. lengths, list	40 00
6 in., in 10 ft. lengths	49 00
Less 70-10 per cent.	
ELBOWS (CONDUCTOR)—	
2 inch, list	5 25
3 inch, list	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00
Less 60 per cent.	

REVISED DISCOUNT ON CORRUGATED SHEETS

Toronto

As pointed out in recent market reports, an easier tone has developed in corrugated sheets, especially since the last downward revision in quotations on flat sheets. This trend has resulted in a change in discounts on the corrugated, the level being 10 per cent., compared with the previous discount of 7½. The list prices are unchanged, as follows:

CORRUGATED SHEETS—	Per 100 Sq. Ft.
No. 28 gauge	$6 50
No. 26 gauge	7 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50
Less 10 per cent.	

Lighter than 24 gauge and wider than 27 inches, 75c a square extra.

EASIER TONE IN LEAD WITH SOLDER PRICES STEADY

Toronto.

While some higher prices are now quoted in certain quarters on solders, yet this change applies to such grades as strictly, commercial and tinkers. Quotations on basic markets, however, while maintaining the recent increased levels, show a tendency towards a slightly easier undertone. This development is also noted in lead. Generally, however, the following are the average local prices at present in effect:

LEAD AND ZINC GOODS—	
Lead, pipe, list, per lb.	0 12½
Lead, waste pipe, list, per lb.	0 13½
Do., over 8 in., list, per lb.	0 14½
Lead pipe is subject to a discount of 10 per cent.	
Lead traps and bends,	10 per cent.
Lead sheets, 4 to 6 lbs., sq. ft. in rolls, lb	0 09½
Cut sheets, ½c to ¾c lb. extra and cut sheets to size, 1c lb. extra.	
Solder wire, per lb.	0 32½
Do., commercial, lb.	0 22½
Do., strictly, lb.	0 24½
Do., guaranteed, lb.	0 27½
Do., wiping, lb.	0 22½
Zinc sheets, per lb.	0 12

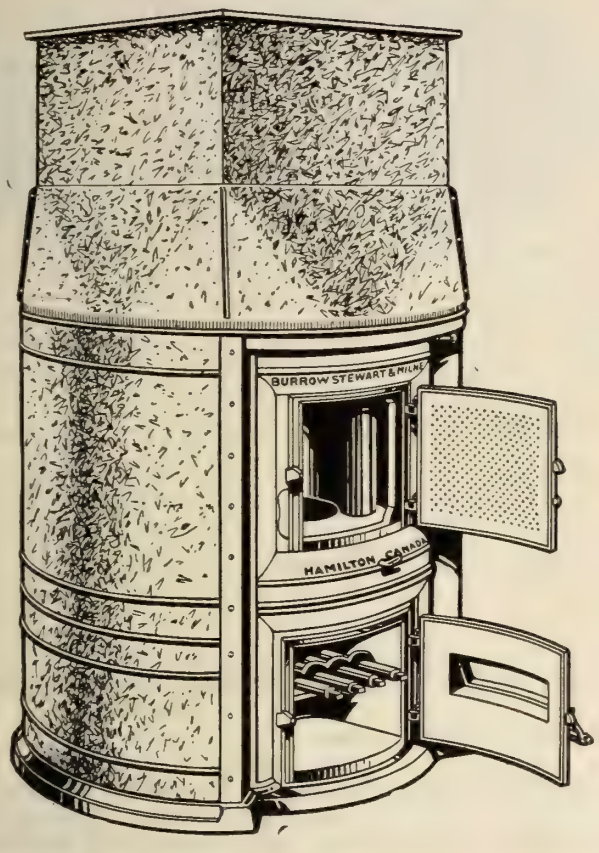
LITTLE BUSINESS REPORTED IN BAR IRON AND STEEL

Toronto

Orders for bar iron and steel are admittedly not very numerous at present, but the general situation is described as in fairly good shape considering the present season of the year. Quotations on the local markets are practically unchanged from former levels, while reports of pending reductions in bar prices by leading producers in the southern primary centres have been strenuously denied. New business for 1922 has not opened up to any extent, as yet. Following are local nominal quotations:

IRON AND STEEL		
Mild steel bars, base	3 00	3 25
Mild steel bands, 3-16 in. base	3 50	3 75
Bar iron, base	3 00	3 25
Angle iron, base	3 10	3 35
Horseshoe iron	3 75	4 10
Tire steel	3 50	3 75
Spring steel	5 50	6 00
Crucible cast sheet steel	30 00	35 00
Mining drill steel		18 50
Cast tool steel, medium	20 00	23 00
Cast tool steel, high grade	30 00	36 00
Sleigh shoe steel	3 00	3 25
Norway iron	12 50	15 00
Toe caulk iron	4 00	4 50
Hoop steel	3 75	4 25

(Continued on page 32)



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TORONTO MARKETS

(Continued from page 30)

QUIETNESS STILL EVIDENT IN SHEET MARKETS

Toronto

Business on the current sheet markets is of a quiet nature, with a more settled condition becoming evident as regards prices. One dealer described the situation as there "being nothing to shade prices for, trade being very dull at present," and in this opinion, price developments would not uncover any improvement in this situation. While it is yet early to determine future prospects, there is a fairly hopeful attitude among dealers generally. The current prices follow:

BLUE ANNEALED—		
10 gauge, base	3 75	4 50
12 gauge	3 80	4 55
14 gauge	3 85	4 60
16 gauge	3 90	4 65
BLACK—		
18-20 gauge	4 30	5 05
22-24 gauge	4 35	5 10
26 gauge	4 40	5 15
28 gauge	4 50	5 25

Charge of 25c. per 100 lbs., is made for less than case lots. An extra 10c per 100 lbs. is also charged on sheets 26 in. wide.

GALVANIZED -	Queen's Head.	Fleur-de-lis.
28 gauge	8 25	7 75
26 gauge	8 00	7 50
24 gauge	7 60	7 10
22 gauge	7 25	6 75
18 and 20 gauge	7 10	6 60
Premier and Apollo—		
10¾ oz.	6 25	7 00
U. S. 28, base	5 85	6 60
U. S. 26	5 55	6 30
22 and 24	5 40	6 15
18 and 20	5 25	6 00
16	5 10	5 85
12 and 14	4 95	5 70

An extra is now charged on galvanized sheets, 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20 cents per 100 pounds. Other gauges show no change for different widths.

An extra 40 cents per 100 lbs., is charged for Keystone and Premier brands copper-bearing sheets.

ONLY MODERATE TRADE IN ENAMELLED WARE

Toronto

Current business in enamelled ware products is described as of a moderate nature, with quotations remaining unchanged at the recently lower levels. The nominal local discount on list prices is maintained at 33-1/3 per cent, with dealers generally anticipating an improved development in these markets with the promise of increased building activity during 1922. Following are the current quotations :

ENAMELLED WARE—	
Enamelled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.	51 40
Do., 5½ ft.	57 10
Lavatories—	
17x10" Apron F139 or P4045	15 30
18x24" Apron F164 or P3845 or P3847	23 60
18x21" Apron F169 or P4205	17 60
18 x 21" Roll Rim, F197, F199 or P4655-6	15 40
17 x 19" Roll Rim, F241 or P4345	12 60
Sinks, Roll Rim, 16x24 in.	18 10
Do., 18 x 30 in.	23 00
Do., 20 x 30 in.	24 70

Sinks, Flat Rim—	1 only	2 only	3 only
16 x 24	$7 60	$7 70	$7 80
18 x 30	8 50	8 60	8 70
20 x 30	9 70	9 80	9 90

Above prices list, less 33 1-3 per cent.

All steel enamel baths, 4 and 4½ ft.	$14 00
Do., 5 ft.	15 00
Do., 5½ ft.	16 75

These quotations are net.

LOOK FOR GRADUAL IMPROVEMENT IN FITTINGS

Toronto

While the current volume of business in pipe fittings is described by distributors as being of a quiet nature at this time of the year, the outlook for improved trade during the ensuing season is generally optimistic. Demand for pipe fittings of various kinds is expected to reflect the anticipated improvement in construction circles, this condition being supported to some extent by the fact that the erection of many homes is reported already planned for 1922. Quotations on these products are steady at previous levels, the following discounts being in effect:

PIPE FITTINGS—	Per cent.
Cast iron fittings	25
Plugs, cast iron	28
Do., solid	28
Do., countersink	28
Bushings, mall.	28
Do., cast	28
Unions, ¼ in. to 2 in.	45
Do., 8 in., 2¼ to 4 in.	45
Flanged unions	25
Dart unions, blk., ¼ to 2 in.	33½
Do., ⅛ in., 2¼ to 4 in.	23
Do., galvd., add to black	30
Nipples, blk., and galvd. ⅛ to 4 in. close and short	50
Do., 4½ in. and larger	40
Do., long, ⅛ in. to 4 in.	60
Do., 4½ in. and larger	50
Do., running thread	30
Couplings, 4 in. and under	30
Do., 4½ in. and larger	10

MALLEABLE FITTINGS—	Black	Galvanized
Class A	0 54	0 67
Class B	0 22	0 32
Class C	0 14	0 22

STEADY UNDERTONE IN COPPER & BRASS GOODS

Toronto

Quotations on brass and copper products are remaining at the revised levels recently effective, and distributors state that these markets reflect the tone of copper on the primary metal centres. While copper is maintaining a firm position, the current demand has nominally receded, a condition which is due to the prevailing quietness at this season of the yar. Prices on tubing, sheets and rods are generally maintained at the following levels:

BRASS—	
Sheets base, per lb.	$ 0 23
Rods, base, per lb.	0 21
Tubing, base, per lb.	0 25
COPPER —	
Rods, base, per lb.	0 28
Soft sheets, plain, 1 oz. and heavier, lb.	0 30
Do., plain tinned, 16 oz. and heavier, lb.	0 37
Do., polished and tinned, 16 oz. and heavier, lb.	0 42
Tubing	0 29

WROUGHT PIPE MARKET AT MODERATE LEVELS

Toronto

Quotations on wrought piping are now covered by List No. 54, which became effective during the latter part of December. The revision averaged a price decline of around 8 per cent., and is calculated to place this market on a substantial basis for current trade in the early months of the year. Prevailing business is described as fair for this season, while production is still recording a moderate rate.

WOULD SHADE BOILER TUBE PRICES FOR GOOD ORDER

Toronto

Prices on boiler tubes are nominally unchanged, with trade in these products of a quiet nature. Dealers state that the following quotations represent the average market. Any changes that might be made would constitute slight fluctuations, with very little variation from the prevailing levels. Such seesawing from week to week could hardly record any substantial change, according to the opinion of one local distributor. However, it was freely admitted that such price shading from these figures is general if any attractive business is in sight. For general purposes however, the following quotations are generally in effect:

BOILER TUBES—	Seamless	Lapweld
1 inch	26 00	.....
1¼ inch	27 25	.....
1½ inch	26 25	.....
1¾ inch	29 75	25 00
2 inch	28 00	22 00
2¼ inch	32 00	25 00
2½ inch	40 00	27 00
3 inch	44 00	35 00
3½ inch	60 00	40 00
4 inch	75 00	50 25

QUIET SESSION IN RADIATORS & BOILERS

Toronto

The situation in radiators and boilers has registered very little variation. Quotations are unchanged at the downward levels recently announced, and trade is naturally of a restricted nature at this season of the year. Following are the current prices and discounts:

RADIATORS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60.

Discount on 2, 3, 4 and 5-column standard sizes, 59 per cent. for water and 60 per cent. for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 51 per cent. for water and 52 per cent. for steam.

Discounts on 1-column hospital size, water 33 per cent.; steam 34 per cent.

Wall radiators—5 ft. $1.15; 6 ft. $1.10; 7 ft. $1.05; 9 ft., $1.05; 12 ft., $1.05. Discount 56 per cent.

BOILERS—

Water:

Round 60 per cent. off list. Square 15 per cent. off list.

Steam:

Round, 28 per cent. off list; square, 15 per cent. off list.

CHANGE IN PRICES ON PENBERTHY BRASS VALVES

Toronto

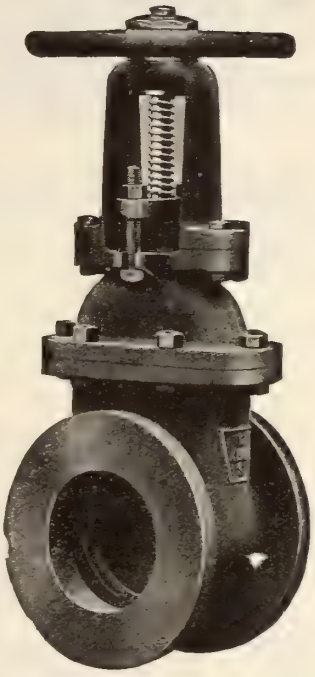
Another downward revision has been announced by the manufacturers in quotations on the Penberthy line of brass valves. The new prices are approximately 10 to 15 per cent. lower than formerly. Following are the revised discount levels:

PENBERTHY BRASS VALVES

Gate valves	33 per cent.
Regrinding valves	20-10 per cent.
Swing check valves	10 per cent.
Compodisk valves	20-10 per cent.

For Winnipeg Market Quotations see page 34.

Reflect Credit on the Work
Use Kerr Valves



Kerr Valves make good. For every one installed there is a return of satisfaction and good-will, ample for all concerned.

The man who has recommended and installed Kerr Valves is closest to the client, and, naturally, the lion's share of consequent new business goes to him.

KERR VALVES ARE SUPERIOR

Take the Kerr Gate Valve illustrated, for instance: It is well designed; strong and sturdily made; note the compact and narrow face-to-face dimensions; observe the accessibility of the stuffing box; the strong, generous flanges and the properly spaced bolting. Kerr Valves will help your business—ask for Catalogue No. 5.

The Kerr Engine Co., Limited

Valve Manufacturers

Walkerville, Canada

TRADE MARK J.M.T. REGISTERED A GUARANTEE OF QUALITY

TRADE MARK J.M.T. REGISTERED A GUARANTEE OF QUALITY

MORRISON
SUPERIOR
Plumbing Goods

We stock: Iron Pipe, Lead Pipe, Cast Iron Soil Pipe and Fittings, Brass Tube 1-8 to 10 inch O.D., Brass Pipe —Iron Pipe Sizes, Copper Pipe—Iron Pipe Sizes, Brass Rod—Round & Hexagon, Copper Rod, Sheet Brass, Brass Wire.

We stock: Brass & Copper Pipe, Iron Pipe Fittings, Brass Pipe Fittings, Pipe Fitters' Tools, Stocks and Dies, Pipe Wrenches, Pipe Cutters, Pipe Vises, Etc. Etc.

JAMES MORRISON BRASS MANUFACTURING CO.
93-97 Adelaide Street West
TORONTO

WINNIPEG MARKETS

WINNIPEG, Jan. 14.—Featuring the current market reports in the sanitary and heating industry, are several price revisions to lower levels. These changes affect such products as wrought piping, radiators and boilers, while an easier tendency has developed in both range boilers and cotton wastes. Conditions in other primary markets generally remain unchanged, with little variation recorded in quotations. The proportion of present business is described as of a very moderate nature, this condition being generally looked upon as seasonal.

NEW LIST QUOTATIONS ON WROUGHT PIPING

Winnipeg.

As pointed out in the last issue of Sanitary Engineer, new lower quotations have appeared on wrought piping. The revised list quotations—No. 54—are now available as follows:

BLACK PIPE

F.O.B.	Winnipeg	Calgary, Edmonton, Lethbridge & Medicine Hat.	Saskatoon.	Regina.	Brandon.
LIST NO. 54.					
⅛	$ 6 25	$ 0 28	$ 0 20	$ 0 17	$ 0 11
¼	4 52	0 47	0 34	0 30	0 19
⅜	4 67	0 62	0 45	0 40	0 26
½	5 95	0 94	0 67	0 59	0 38
¾	7 20	1 25	0 90	0 79	0 51
1	10 04	1 85	1 34	1 17	0 75
1¼	13 60	2 51	1 80	1 57	1 00
1½	16 26	3 01	2 15	1 88	1 21
2	21 88	4 04	2 88	2 52	1 62
2½	34 61	6 40	4 60	4 02	2 68
3	45 26	8 38	6 03	5 28	3 39
3½	58 88	10 12	7 20	6 30	4 05
4	69 75	11 97	8 53	7 46	4 80
4½	81 22	13 91	10 04	8 75	5 62
5	94 73	16 30	11 60	10 15	6 52
6	122 86	21 10	15 00	13 14	8 44
7	181 18	26 14	18 62	16 28	10 46
8L	190 38	27 50	20 00	17 50	11 25
9	267 05	37 60	26 96	23 59	15 16
10L	248 00	35 20	25 60	22 40	14 40

GALVANIZED PIPE

⅛	$ 8 50	$ 0 28	$ 0 20	$ 0 17	$ 0 11
¼	7 04	0 47	0 34	0 30	0 19
⅜	7 09	0 62	0 45	0 40	0 26
½	7 89	0 94	0 67	0 59	0 38
¾	9 41	1 25	0 90	0 79	0 51
1	13 50	1 85	1 34	1 17	0 75
1¼	18 29	2 51	1 80	1 57	1 00
1½	21 87	3 01	2 15	1 88	1 21
2	29 43	4 04	2 88	2 52	1 62
2½	46 54	6 40	4 60	4 02	2 68
3	60 86	8 38	6 03	5 28	3 39
3½	77 65	10 12	7 20	6 30	4 05
4	92 00	11 97	8 53	7 46	4 80
4½	105 60	13 91	10 04	8 75	5 62
5	123 15	16 30	11 60	10 15	6 52
6	159 70	21 10	15 00	13 14	8 44
7		26 14	18 62	16 28	10 45
8		27 50	20 00	17 50	11 22

REVISION LOOKED FOR IN COTTON WASTE PRICES

Winnipeg.

At the present time waste prices are steady, but it has been noted that a revision in the near future would not be surprising. The cotton market does not show as much strength as it did the latter part of last year. At present, however, the following list prices are generally in effect:

WASTE—Cream, polishing, 24½c per lb. White—XXX extra, 21c; XX grand, 20c; XLCR 19c; X Empire, 17½c; X Press, 16c.

Colored—Fancy, 17½c; Lion, 16c; Standard, 14½c; Popular J, 13c; Keen, 11½c

Above lines subject to trade discount for quantity.

NO MARKED CHANGE IN PRIMARY SHEET MARKETS

Winnipeg.

The current demand for both black and galvanized sheets remains of a quiet nature. Quotations locally are fairly steady, following the trend in primary market circles, where very little change has been recorded. The average local prices follow:

SHEETS—	Per 100 lbs. Black.	Galv.
10 gauge	5 70	....
12 gauge	5 70	....
14 gauge	5 80	....
16 gauge	5 90	6 75
18 gauge	6 30	6 90
20 gauge	6 30	6 90
22 gauge	6 35	7 05
24 gauge	6 35	7 05
26 gauge	6 40	7 20
28 gauge	6 65	7 80
10¾ oz.	....	8 20

STILL MEETING COMPETITION IN RANGE BOILER PRICE

Winnipeg.

At this season of the year, sales of range boilers are of a dull nature, and therefore the market is far from active. Prices at present, continue merely nominal, as competition is met from all sources and the quotations on the 30 gallon standard size have suffered as a result. It is expected, however, that some movement will develop in the near future, with the object of stabilizing this condition. Following is the general list:

RANGE BOILERS—

30 gallons, each	$ 9 00
35 gallons, each	13 25
40 gallons, each	16 25
52 gallons, each	23 45
66 gallons, each	33 15
82 gallons, each	40 60
100 gallons, each	62 50
120 gallons, each	75 00

LITTLE VARIATION IN SOIL PIPE & FITTINGS

Winnipeg.

Prices on soil pipe and fittings are being maintained at previous levels, with the current demand of a very moderate nature at this season of the year. There has been some fluctuation recorded in other market centres, but the following are the unchanged nominal local quotations:

SOIL PIPE—

2 and 3 inch, 20 per cent.
4 inch, 30 per cent.
5 and 6 inch, 25 per cent.
8 inch, 10 per cent. advance.

SOIL PIPE FITTINGS—

2 nd 3 inch, 40 per cent.
4, 5 and 6 inch, 45 per cent.
8 inch, 10 per cent. advance.

DECLINE IN PRICES ON RADIATORS & BOILERS

Winnipeg.

Quotations on both radiators and boilers are now on an easier level through a revision in the discounts. The extent of the reduction varies slightly on the different styles. Following are the new discounts on these products:

RADIATORS AND BOILERS—

Square hot water boilers, 15 per cent.
Square steam boilers, 15 per cent.
Round hot water boilers, 60 per cent.
Round steam boilers, 20 per cent.

Radiators—

Steam, 54 per cent.; water, 53 per cent.

MEET UNJUST CHARGES WITH ACTUAL FACTS

Continued from page 19

Most important of all, however, is a proper check on the distribution of Overhead Expense to the various jobs. There is nothing that has caused more failures in this business than lack of proper records of Overhead. You buy and sell Overhead Expense just as you buy and sell labor and material. It is just as essential that your customer pay for his share of your Overhead Expense as it is that he pay for each and every fixture and fitting that goes into a job.

The matter of distributing, properly, to each job its proportion of Overhead, is a little more difficult than distributing the cost of definite items such as labor and material. Yet it must be done if we are to be safe against financial disaster. A little of the Master Plumber's time spent in reasoning out the distribution of Overhead will be just as profitable, if not more so, than the time spent in trying to secure additional work. In the absence of the proper knowledge of Overhead, the additional work may only bring closer the financial crash. A proper bookkeeping system will tell you whether or not you are getting back as much overhead as you are spending. If it does not, reject it then and there, because sooner or later it will cost you many times the amount you paid for it.

To sum it all up then in a few words. A bookkeeping system that is to fulfill its object must do this:

> Give your costs and profits on each job: Analyze the costs as to the main items, particularly Labor, Material and Overhead; Give you a comparison of the amounts *spent* for Labor and Overhead with the amounts *charged* to jobs to cover these items. Only thus can you know that all that has been spent has been applied to the proper jobs.

CONGRATULATIONS

Geo. Fenn, Sec.-Treasurer. and John H. Jackson, veteran plumber and tinsmith of Ecclestone & Bates, Ltd., Sanitary Engineers—Bracebridge, Ont.,—were both elected to the Board of Education 1922 at Bracebridge Municipal Elections.

PERFECTION HANGERS

Easily Adjusted to Any Pitch.

Extension to 10 Ft.

All Goods conform with custom regulations. When in New York call at our office and warehouse, 234 Water St., and see our complete line.

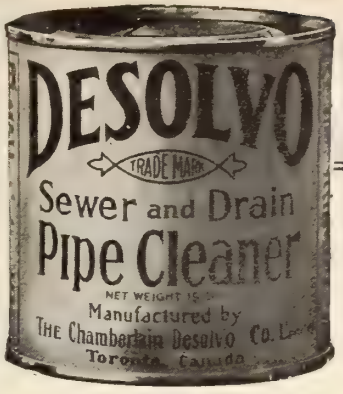
Write now for our catalogue. Beaton and Cadwell air valves and other specialties are rapidly attaining the same popularity that years of sterling service have won for our floor and ceiling plates.

The Beaton & Cadwell Mfg. Company

New Britain, Conn.

Eastern Agents:
J. R. Devereaux & Co.
New Birks Bldg.
Montreal

Western Agents:
A. E. Hinds & Co.
Galt Building
Winnipeg



Clears Clogged or Frozen Pipe

Supplies a Real Need

Show Desolvo in your window with a conspicuous card explaining, in very few words of large, easily read type, what it does for consumers. You will be agreeably surprised with the resulting sales.

It is easy to sell when you explain the saving in trouble and expense of tearing up floors, woodwork or lawns. The main thing is to let customers know what it does and that you have it for sale.

The Chamberlain Desolvo Co., Limited

109 Church St., Toronto

Eastern Canada Representative: Richardson & Bureau, 55 St. Francis Xavier St., Montreal.
Ontario Representative: L. F. Mayne, 875 Trafalgar St., London, Ont.
Western Canada Representative: N. D. McPhail & Co., Standard Bank Bldg., Vancouver, B.C.

OVER 4,000,000 RIVETS

—THINK OF IT!

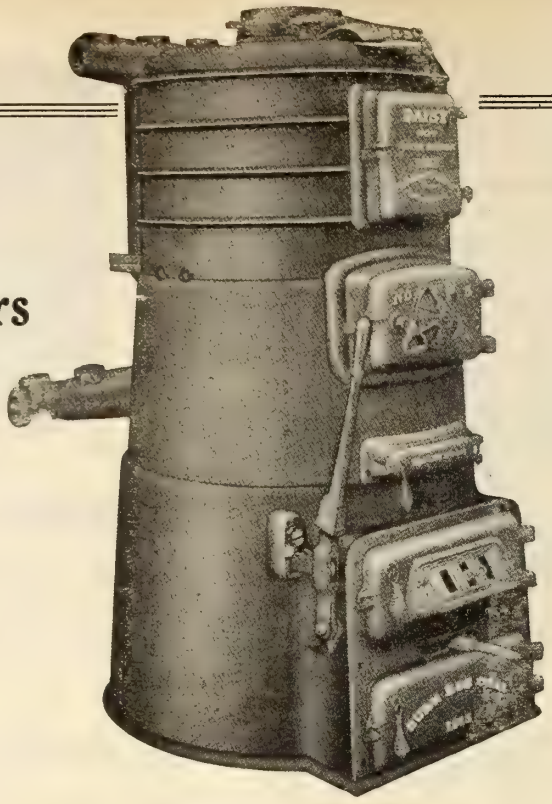
We used that many rivets in the Range Boilers we marketed during the past year.

We desire to thank the plumbing trade again for their continued loyalty to the products we have been supplying for over a quarter of a century.

Toronto Hardware Mfg. Co. Limited.

DAISY

Hot Water Boilers



The Daisy Boiler is the friend of householders. Its simplicity, ease of operation, economy and reliability steadily make new friends and hold the old ones.

DAISY

Hot Water Boilers

With a Daisy, it is easy to keep an even temperature through the night or any other time with a minimum fuel consumption.

You'll find it good business to specify the "Daisy."

WARDEN KING, Limited, Montreal

Branch Office : 136 Simcoe St., Toronto

Good for Houses?

Yes, and Your Business!

VULCAN

Pure Air Furnaces

The greater radiating surface on the Vulcan makes them more effective. They are economical, simple and easy to operate, and very profitable for you to install. Built of heavy metal, they are very durable in use.

Read This

London, Feb. 11th, 1921.

Gentlemen:—
I have used the Vulcan Pure Air Furnace for several years. I find it economical on fuel, easy to operate, and as it has a greater radiating surface than any other in its class, I have been well pleased with the results. I can recommend its use to any. I believe it to be durable on account of the heavy metal in its construction.

DR. COPELAND.

The Vulcan Co., Limited

London - Canada

Allpriser—
Your Price Clerk

Write for further information

K. B. ALLISON

4 Irwin Ave. - Toronto, Ont.

WEST

Furnace Carburetors

Save 15% in Fuel Bills

West Furnace Carburetors and Smoke Abaters supply warm oxygen to the fire. This burns the carbon and gases. It makes useful these rich materials, that, without the carburetors, are lost up the chimney.

West Furnace Carburetors are putting big profits in the pockets of aggressive Sanitary and Heating Engineers.

Territory Still Open

The Canadian Combustion Co. Ltd.
43 Victoria St., Toronto

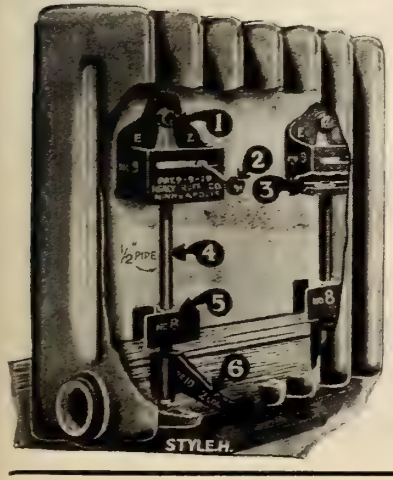
"B & C" AIR VALVES and FLOOR PLATES

are unsurpassed for quality. Every automatic air valve is tested before leaving the factory and guaranteed perfect.

"B. & C." plates in solid or split pattern are copper plated as well as nickel plated and are the highest quality obtainable.

We have a complete stock of plates and valves at Toronto, (plates 1-4 to 6 in.) also a complete stock of plumbing and heating specialties.

W. H. Cunningham & Hill, Ltd.
269 West Richmond St., Toronto



E-Z Radiator Hanger

HEALY-RUFF CO. MINNEAPOLIS, MINN.

(1) One Bolt. (2) Invisible Washer. (3) Horizontal Adjustment. (4) Vertical Adjustment. (5) Baseboard Adjustment. (6) Made for Wall and Column Radiation. Reasonable in price.

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D. G. Brison, Standard Bank Building, Vancouver

A. Walker, 514 McLean Bldg., Calgary.
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Shaver Bros., Booth Bldg., Ottawa.
S. T. Hadley, 304 University Street, Montreal

For 1922—a Forecast

During 1922 MACLEAN'S MAGAZINE will continue to live up to the high standard which has been set. The articles will be of two characters: those which are essentially timely and those which describe some phase or facts of Canadian life which may have existed for a score of years—or more—but which have never before been served up for your delectation and entertainment in such a readable form. To use the language of the journalist, MACLEAN'S readers may expect the best news articles with a national slant and bright, entertaining feature-articles. These will be written authoritatively and among early ones which we can announce are articles by:

John Nelson — Nellie McClung — Janey Canuck — Stephen Leacock — Arthur Stringer — Charles A. Hayden — Dr. C. K. Clarke — J. L. Rutledge — C. C. Jenkins — C. L. Shaw — Agnes C. Laut — George H. Ham and James Mavor.

Some Details of the 1922 Short Fiction Program

First of all there is a novelette starting in January 15—"The Sail Dragger"—a gripping, sea-adventure story from the pen of Frederick William Wallace; illustrated by C. R. Patterson.

Other fiction scheduled includes: three "Lenix Ballister" stories, by Archie McKishnie; two fascinating romance-adventure stories by Madge MacBeth; "Wetherell's Romance" and "Her Feet Were Crossed," by Alan Sullivan; "Pierre des Lacs," by H. B. Atlee; "The Lost Stirrup" and "Alter Idem," (two more in his series of racing stories) by W. A. Fraser.

Illustrators

Whose Work Will Appear in MacLean's During 1922.

ARTHUR HEMING
C. W. JEFFREYS
CHARLES A. MACLELLAN
DUDLEY GLOYNE SUMMERS
R. M. BRINKERHOFF
ARTHUR WILLIAM BROWN
F. R. GRUGER
W. V. CHAMBERS
H. WESTON TAYLOR
MARY ESSEX
LOU SKUCE
C. H. TAFFS
CHARLES L. WRENN
E. J. DINSMORE
T. Y. McCARTHY
C. R. PATTERSON
G. F. PETERS
NORMAN PRICE
BARNET BRAVERMAN

Heming Will Return

It is perhaps a long way off to announce Arthur Heming's next feature in MACLEAN'S, but anything he writes—or paints—is of such paramount interest to MACLEAN'S readers that we will draw aside the veil a moment and let you have a peer at something which is coming through, probably not until toward the close of 1922.

Mr. Heming has once more left the cities and retired to a quiet Inn, where he is engaged upon another book, which will be a worthy successor of "The Drama of Our Great Forests." It will treat, of course, of Canada's vast North Land, but from a very different view-point.

A Striking Series by "Sapper"

Now, the only war-writers who receive attention are the few who, by their craftsmanship and wide human appeal have a likelihood of more than ephemeral fame. Among the chief of these is "Sapper"—H. Cyril McNeile. Throughout the war his engaging personality was displayed in newspaper articles and books of short stories. Now he is writing stories of the peace, which are just as enthralling. The best of these will appear in MACLEAN'S MAGAZINE during 1922.

Feature Departments

In addition to the most attractive offering of the best short stories and serials, and the more serious literature — biographical, reminiscent, political — MACLEAN'S provides its twice-a-month

Review of Reviews Department

which keeps its readers posted on current topics and developments in all parts of the world; also the semi-monthly articles on

The Business Outlook and Investment Situation

which is looked upon as the most authoritative review of this kind in the Dominion; and the special articles on

Topics of National Interest in Canada

which have made MACLEAN'S something more than a magazine—a National Institution.

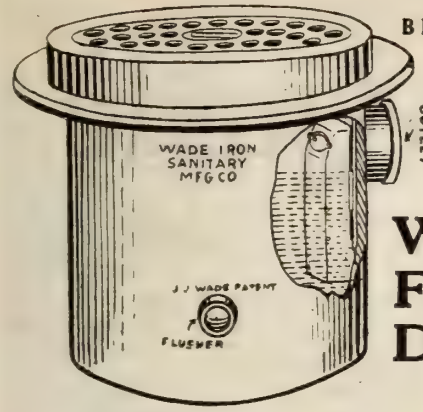
First and Fifteenth of Every Month

MACLEAN'S

"CANADA'S NATIONAL MAGAZINE"

Most Talked of Publication In Canada

The MacLean Publishing Company, Limited, 143 University Avenue, Toronto, Ont.



B Fg. 124 - Floor Drain

For Dairies and Concrete Floors

Wade Floor Drain

Has a Special Flange

Wade Accessible Flushing Clean-Out Cast Iron Floor Drain Basin is for use in concrete floors in buildings of steel and mill construction.

Is provided with special flange, safeguarding ceilings against floor washings of upper floor.

Our catalogue will give full particulars of this service-built fitting.

Write for Catalog "B"

Wade Iron Sanitary Mfg. Co.
551-553 Fulton St. CHICAGO, ILL.

Manufacturers and Dealers in
Back-Water Fittings, Iron Garage Basins, Floor Drains and All Descriptions of Iron or Gravel and Grease Basins

WOLVERINE TAP PLUG

It Cuts and Taps its way through.

Can be Applied in a jiffy.

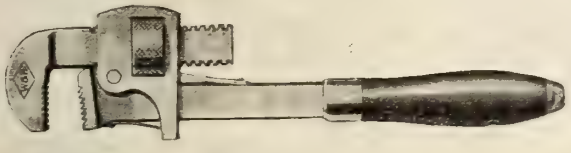
Scientifically Made—absolutely dependable for holding leaks in pipes, radiators, boilers, etc.

The "Service Plug" for temporary or permanent repairs.

WOLVERINE —LIMITED—

76 Nelson St. Toronto

Wolverine Products Always Satisfy



Choose the Right Tool

You can't expect a cheap, inefficient wrench to hold and turn rusted pipe or fittings. It's bound to slip or break.

WILLIAMS' STILLSON WRENCH is dependable; it is made for heavy duty. Drop-forged from special steel, carefully hardened and tempered, its sturdy strength is proof against the knocks and strains of hard service. The tough teeth retain their sharpness; they 'bite' instantly, yet release readily.

For grip, power and endurance, choose Williams' Stillson, Wood and Steel Handle patterns—eight sizes 6 to 48 inches. Made in Canada.

J. H. WILLIAMS & CO., Limited

"The Wrench People"

77 Thorold Rd., St. Catharines, Ontario

WHAT IS YOUR ADVERTISING DOLLAR BUYING ?

High prices of materials and increased overhead have made necessary a stricter economy along mercantile lines.

Advertising should be considered as well as the commodities in which merchants deal.

By choosing only those publications whose circulation is accurately measured, you not only practise economy in your advertising, but are assured that your money is buying a definite quantity of circulation.

The Sanitary Engineer's circulation is measured by the Audit Bureau of Circulations. Advertising placed in its columns is an economical investment.

Classified Buyers Guide

AIR LINE SYSTEMS
C. A. Dunham Co., Ltd., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.

ALUMINUM CASTINGS
Fittings Limited, Oshawa.

AIR PRESSURE TANKS
The Canadian John Wood Mfg. Co., Toronto.

AIR VALVES
Beaton & Cadwell Mfg. Co., New Britain, Conn.
Beaton & Corbin Mfg. Co., Southington, Conn.
W. H. Cunningham & Hill, Ltd., Toronto.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
J. H. Williams Co., Brooklyn, New York.
Steel & Radiation, Ltd., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.

ASBESTOS GOODS
James Morrison Brass Mfg. Co., Toronto.

BATHROOM FITTINGS
Gendron Mfg. Co., Ltd., Toronto.

BENDING SPRINGS
W. H. Cunningham & Hill, Ltd., Toronto.

BOILERS, STEAM OR HOT WATER
The Canadian John Wood Mfg. Co., Toronto.
Gurney Foundry Co., Limited, Toronto.
Lord & Burnham Co., Ltd., Toronto.
Spencer Heater Co., Ltd., Toronto, Ont.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal.

BOILER FEED REGULATORS
Empire Mfg. Co., London and Toronto.
C. A. Dunham Co., Ltd., Toronto.
James Morrison Brass Mfg. Co., Toronto.

BOILER STANDS
Fittings Limited, Oshawa.

BOLTS, EYE
J. H. Williams & Co., Brooklyn, N.Y.

BOLTS AND NUTS
Fittings Limited, Oshawa.

BRASS GOODS, VALVES, ETC.
Canadian Brass Co., Ltd., Galt, Ont.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings Limited, Oshawa.
Galt Brass Co., Limited, Galt.
Kerr Engine Co., Ltd., Walkerville.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Trimont Mfg. Co., Roxbury, Mass.
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Sanitary Engineer
Plumber and Steamfitter of Canada

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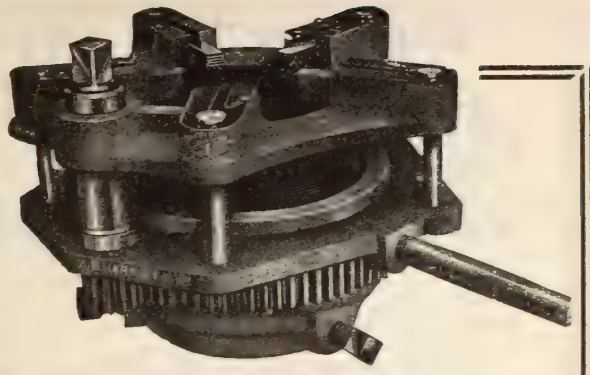

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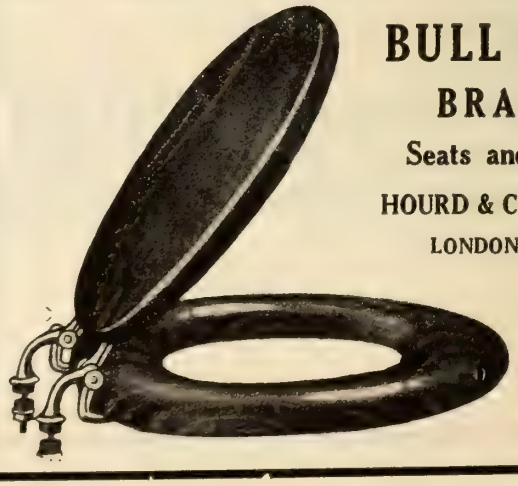

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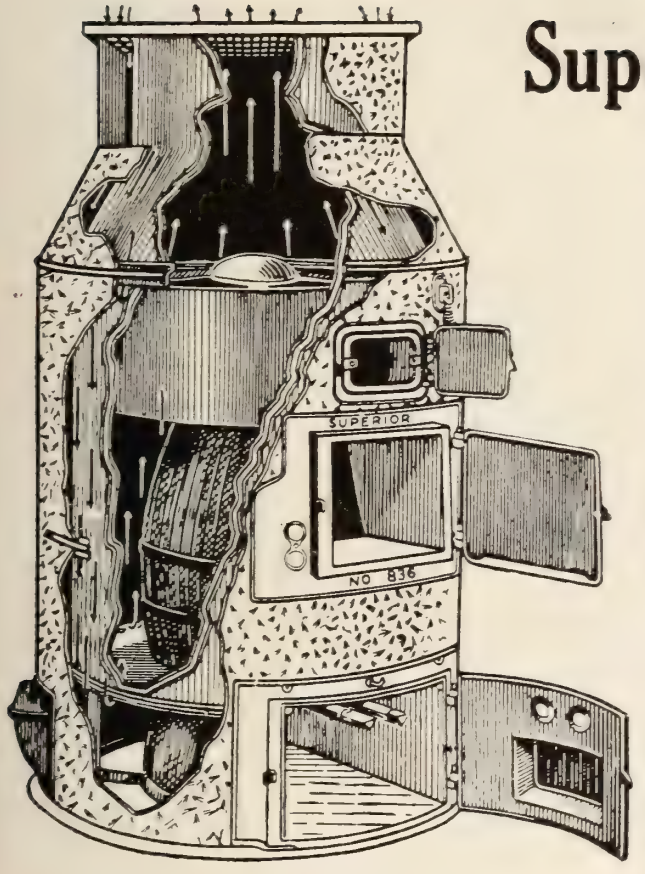

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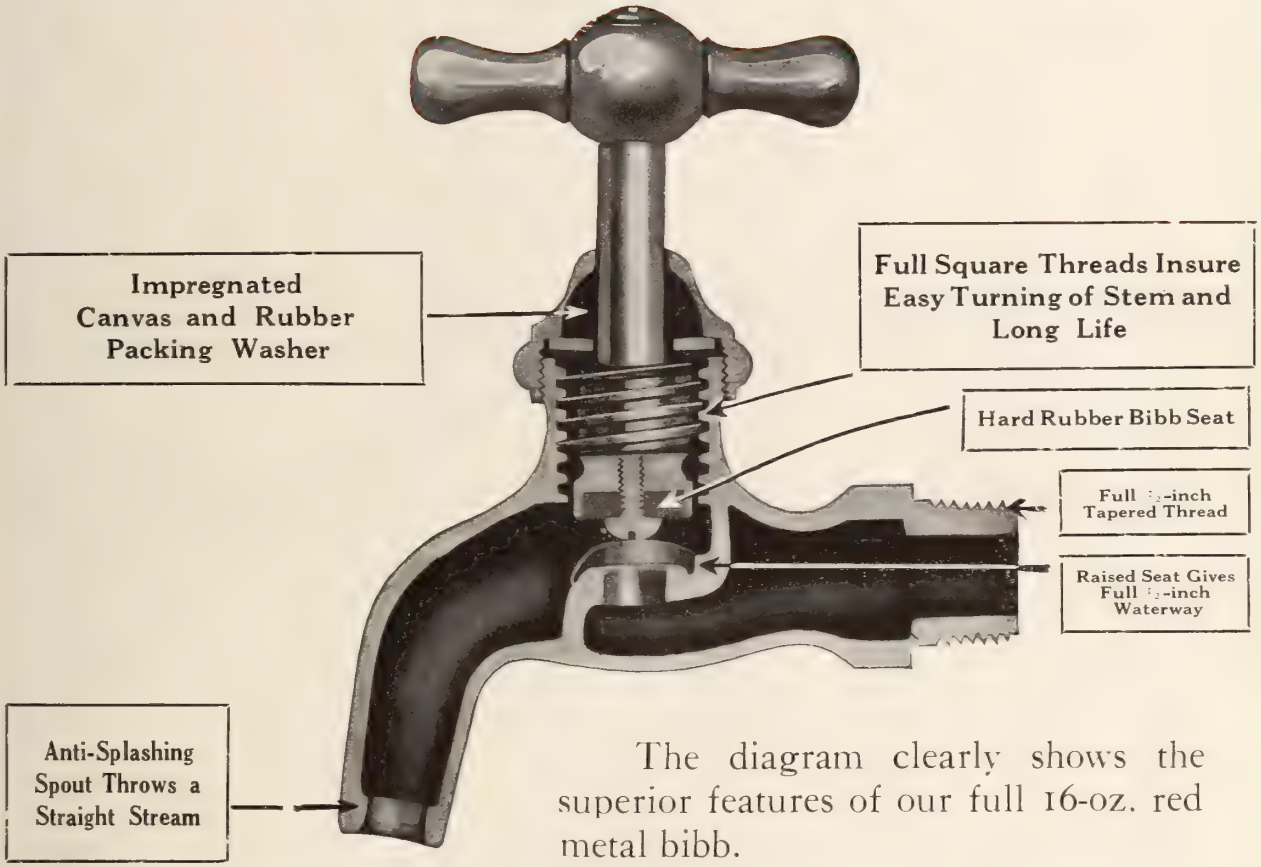
Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XVI. PUBLICATION OFFICE, TORONTO, FEBRUARY 1, 1922 No. 3

Anti-splash Empire Bibb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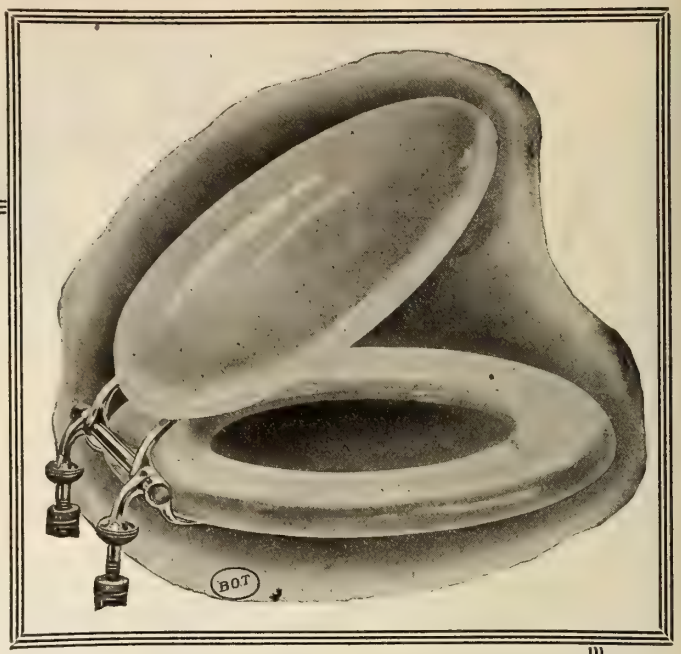


Did You Ever?

Mr. Sanitary Engineer:

Did you ever sell an article that was Perfect? The WORLD'S FINEST CLOSET SEAT and the MOST SANITARY CLOSET SEAT yet produced is the "B.O.T." BLANCO. **IT IS PERFECT**, ask anyone who has installed one.

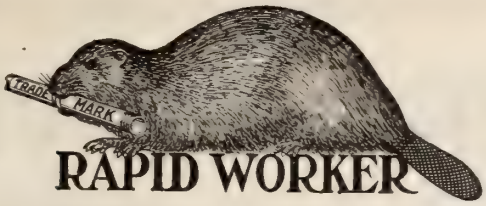
First made with the regular "B.O.T." DOWELLED SEAT CONSTRUCTION; then covered with a heavy coating of "B.O.T." SHEET BLANCO, which leaves NO SEAMS; lastly finished on a BUFFING WHEEL just as metal is polished.

IT IS proof against hot or cold water, WILL NOT CRACK, PEEL or DISCOLOR; is EASILY CLEANED with soap and water, hence is IMPERVIOUS TO DISEASE GERMS.

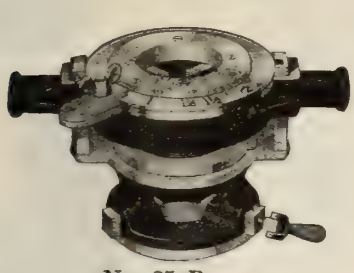
Your customers are in favor of a WHITE CLOSET OUTFIT, a "B.O.T." BLANCO SEAT adds the finishing touches, or, in other words, MAKES A FIRST-CLASS JOB.

SOLD in all styles. Further information gladly sent on request.

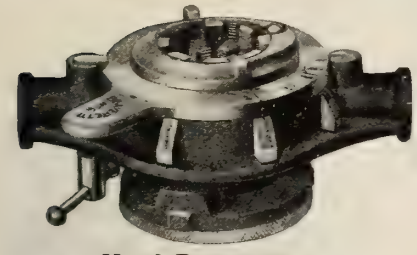
CANADIAN BRASS COMPANY
LIMITED
Galt — Toronto



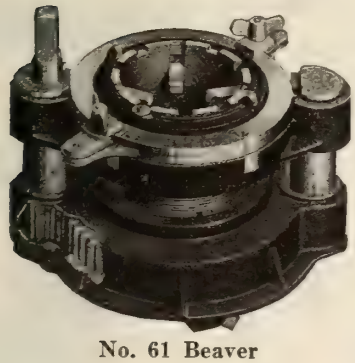
BEAVER



No. 25 Beaver
1 inch to 2 inch



No. 6 Beaverette
⅛ inch to ¾ inch



No. 61 Beaver
2½ inch to 6 inch

Three Beavers Replace 51 Loose Parts

Beaver Tools will help your business by making a good profit on every job. Here are shown three self-contained Beavers with no loose parts to complicate matters. They will handle jobs of the diameters shown under each cut without hanging dies! One man can pull any sized Beaver Tool with one hand—they make one man jobs.

Martin Portable Vise Stand and Pipe Bender

The Martin Portable Vise Stand and Pipe Bender is invaluable. It cuts the cost of good-fitting jobs. Plumbers find it indispensable. It stands anywhere. It is the only device that doesn't need to be fastened on floor, wall or ceiling. It will pay you to send a 10-day free trial order to us, through your jobber, or direct.

Other Easy Working Beavers

No. 3 Jr. ⅛ to 1 inch (Ratchet).
No. 4 Beaver 1 to 2 inch; or ½ to 2 inch (Ratchet).
No. 26 Beaver 1 to 2 inch (Ratchet).
No. 61 Beaver 2½ to 6 inch.
No. 80 Beaver 4½ to 8 inch.
No. 90 Beaver 9 to 12 inch.
These three are similar to No. 41.
No. 23 Beaver 1 to 2 inch or ½ to 2 inch.

Square End Pipe Cutters

No. 1 cuts ⅛ to 1 inch.
No. 5 cuts ½ to 2 inch.
No. 10 cuts 2½ to 4 inch.
No. 15 cuts 2½ to 6 inch.

All four cut pipe without burrs—with knives feeding automatically.

--The--

Borden-Canadian Co.

110 Church Street - Toronto

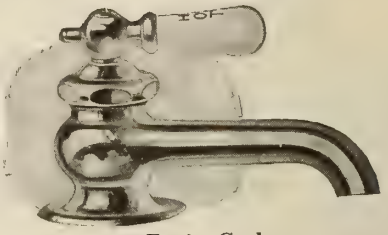
Showing the Martin Portable Vise Stand and Pipe Bender in Use and Packed

FREE! Ask about the 10-day free trial offer.

QUICK DELIVERY

A-3200 Bath Cock

Immediate delivery *from stock* of these matchless quick-opening quaturn Plumbing Goods.



A-1900 Basin Cock

Standardized Goods with *working units*, interchangeable throughout all styles, *closing with the pressure.*

A-3500 Bath Cock

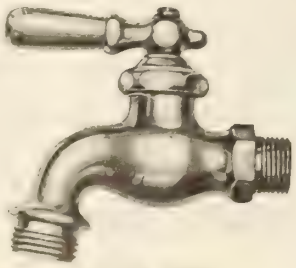
Only the working units to renew, *the bodies stay installed permanently.*

A-2000 Basin Cock

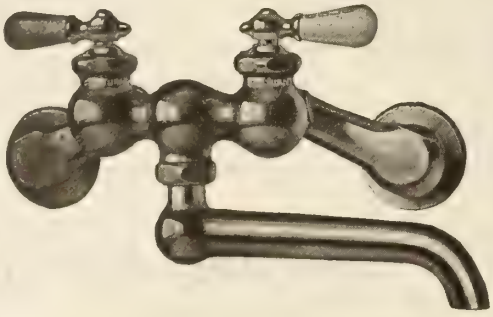
Your jobber can supply these, if not write us direct.

A-200 Bibb

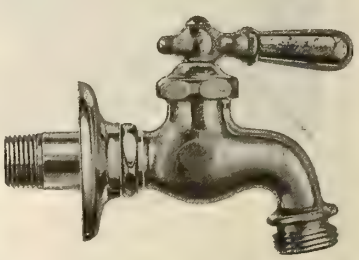
A-1000 Sink Bibb



A-202 Bibb



A-100 Sink Mixing Faucet



A-1002 Sink Bibb

The Wallaceburg Brass & Iron Manufacturing Co., Limited

WALLACEBURG, ONT.

TORONTO:
Mr. L. N. Vanstone, 10 Wellington St. East
Telephone: Main 2355

WINNIPEG:
Moncrieff & Endress, Ltd., Galt Bldg.
Telephone: A 9135

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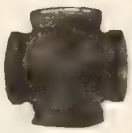
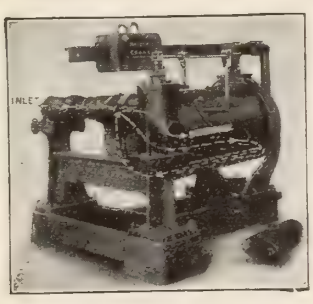
places within your reach, through numerous showrooms and branches, the most advanced ideas on

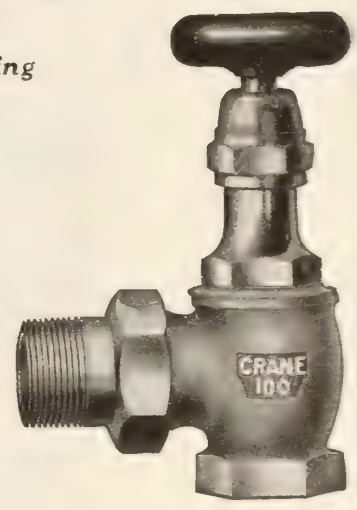
Heating and Plumbing Equipment

FOR BUILDINGS OF ALL KINDS AND SIZES



Manufacturers of Valves, Fittings and Piping Equipment and Distributors of Pipe, Plumbing and Heating Supplies.





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Sales Offices:
QUEBEC, SHERBROOKE, ST. JOHN, VICTORIA.

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LIMITED
HEAD OFFICE & WORKS
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CRANE-BENNETT
Limited
Head Office and Warehouse:
LONDON, ENGLAND.

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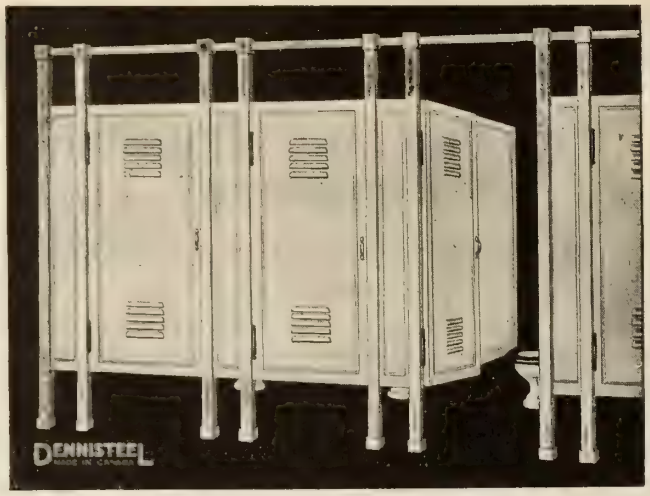

The School Board In London Built A Collegiate

London had needed a new collegiate for a long time. It had to be a well built school, one modern to the minute—yet economy was to be practiced throughout—which meant that everything in the London Collegiate was to be the best for the purpose—for everything built into that school was to be there to **last**—articles that would never have to be replaced by "something better."

That's why the School Planning Committee selected

DENNISTEEL
Made in Canada

Steel Lavatory Compartments
Hygienic—Fire-proof—Nonmarkable

They based their selection on the principle that Dennisteel Compartments are the last word in sanitation and the most durable that could be installed. The appointments of the new school are beautiful—the Dennisteel Compartments, enameled to harmonize with their surroundings, are well in keeping with the good taste of the building.

SANITARY ENGINEERS! Your school board needs to know the full story of the Dennisteel Lavatory Compartment—they need to know that they are the first choice of those who have studied the school and public building problem. It means money to you to bring this to their attention —Steel Lavatory Compartments should be part of your job.

We also make Steel Lockers, Steel Cabinets, Steel Shelving, etc.; Ornamental Iron and Bronze; Commercial Wirework of all kinds; General Builders' Ironwork; "Boca" Solid Steel Sash.

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SANITARY ENGINEER
PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907 PUBLISHED TWICE MONTHLY

Vol. XVI. PUBLICATION OFFICE, TORONTO, FEBRUARY 1, 1922 No. 3

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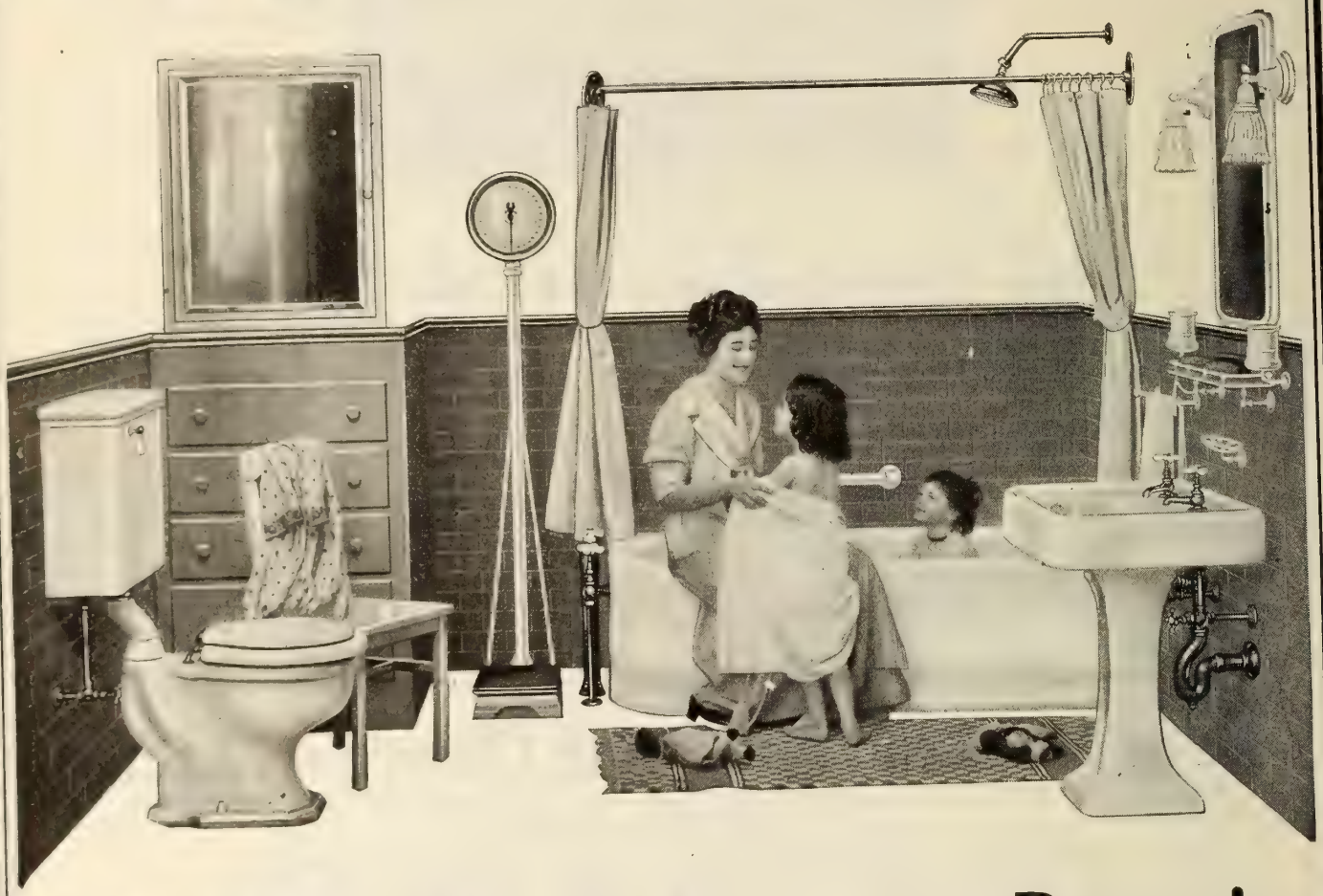
SUBSCRIPTION PRICE—Canada, $2.00 a year; Great Britain, South Africa, and West Indies, 8s. 6d. a year; United States. $2.50 a year; other countries, $3.00 a year. Single copies, 10 cents. Invariably in advance.

"Standard" PLUMBING FIXTURES



Go After Old Bathrooms to Renew!

Good displays of "Standard" Plumbing Fixtures help powerfully to stimulate the desire for replacement of old, out-of-date work with the fresh new white-and-nickel beauty of Standard Fixtures. Every ten-year-old house in your locality is a prospect—get it!

Standard Sanitary Mfg. Co.
Limited

General Office and Factory: Royce and Lansdowne Aves., Toronto, Ont.

Toronto Store:
55-59 Richmond Street East
Calgary:
325 Eighth Avenue West

Winnipeg Showrooms:
76 Lombard Street
Hamilton Store:
26-28 Jackson Street West

Montreal:
New Birks Bldg.
Vancouver:
860 Cambie Street

"Made in Canada"

Established 1907

Circulates Throughout Canada

Sanitary Engineer
Plumber and Steamfitter of Canada

Published First and Fifteenth of Month

Vol. XVI. TORONTO, FEBRUARY 1, 1922 No. 3

Encourage Use of Rural Water Systems

Educational Work Undertaken by Ontario Agricultural College to Instruct Student Farmers Concerning Value of Rural Water Supply—Advice Given to Farmers During Summer Months on This Subject—How The Plumber May Co-operate

AN IMPORTANT movement has been initiated by the Ontario Agricultural College, Guelph, Ont., to encourage the installation of water supply systems on farms in the interests of utility and comfort for the farmer. Efforts are being made by the staff of this educational institution to bring about improved conditions on the farm by educating the farmers of to-morrow who attend the college as students, and also by visiting numerous farms in various parts of the province and studying present systems so as to be in position to make recommendations. Considerable publicity matter is appearing in country newspapers from this college pointing out the value of running water on the farm.

Much of this work is being done under the direction of Professor R. R. Graham and for the purpose of finding out just how the plumber may co-operate in this movement, Sanitary Engineer interviewed Professor Graham.

It was explained that while the college has for some time past been dealing with this subject in certain terms, the course has recently been extended. Other educational effort, in the form of short courses, is being made under the direction of the Ontario Minister of Agriculture.

Subjects Taught

Describing the Ontario Agricultural College efforts in this direction Prof. Graham pointed out that the question of farm water supply comes under the Physics Department, and the subjects taught include; tile drainage, ventilation, cold storage, farm water supply, water supply systems, farm plumbing and sewage disposal, concrete work, etc. Special demonstration rooms have been fitted up in which working models of various water supply systems have been erected showing also the operation of septic tanks.

Students have been much interested in this branch of training, those from the cities being particularly susceptible to the suggestions in view of their having been used to such conveniences. During the summer months when the college courses are closed, the students visit various parts of the province calling upon farmers and acting in an advisory capacity regarding the best methods of installation. Blue prints are given showing the best method of laying out drains, establishing pumps, the course of water supply, etc., and the only expense which the farmer pays is the actual cost of the material used.

So much importance is attached to this educational effort by manufacturers of water supply systems and other farm sanitary equipment that engineers are periodically sent to Guelph by these companies to explain fully the working of the various systems. In this way most of the available systems have been thoroughly studied by the students.

Standardize Systems

In the interests of a wider usage of these systems, Professor Graham is working on plans for the standardization of various installations including gravity, compression, gas engine and electrical. It is felt that if the majority of these systems were to be simplified and standardized, that they would have a much more ready acceptation from the farmer. Much of the difficulty in the past is said to have been due to faulty installations caused largely because of the lack of information concerning all the details of every type of system. This situation has done little to convince the skeptical farmer, but it is believed that with a standardized system offering plumbers an opportunity to become thoroughly acquainted with all its details so as to be able to instal a system which will give 100 per cent. service, the number of systems in use would be greatly increased.

In addition to the regular terms the Ontario Agricultural College arranges a special short course each summer for farmers, and the subject of water supply systems is dealt with to some extent at these courses. Each one of these terms would influence between 200 and 300 farmers.

Plumbers Can Co-operate

Linking up with this educational effort, plumbers should find it easier to convince those in the rural districts concerning the value of water supply systems, and now is a good time of year to go after this business for the farmer now has time on his hands, and the old tendency to refuse winter jobs because of fear of freezing is very much exaggerated. In this part of the country frost very infrequently extends more than one foot below the surface of the earth and as for the water freezing, it is unnecessary to turn the water on until the whole system is completed and then the danger of frost is no greater than that of any city system. Winter should be one of the most active periods for installing farm conveniences.

One of the chief arguments of the farmer against such systems has been the cost. In this connection it is pointed out that after much investigation by the Ontario Agricultural College the average cost of installing running water on the farm including pump power for operation, plumbing, piping and all ordinary fixtures in a standard set has been established as $600.

Another Phase of Showroom Question

Prominent Master Plumber of Quebec Province About to Close Showroom After Ten Years' Successful Merchandising of Plumbing and Heating Goods—Lack of Protection From Wholesalers Given as Cause—Says Individual Plumber's Showrooms More Effective if Properly Protected

In recent issues of Sanitary Engineer have appeared a number of articles based on interviews with various master plumbers concerning the subject of showrooms for plumbers. In the interview which follows another phase of the question is outlined, namely, the lack of protection afforded the trade by certain wholesalers. Sanitary Engineer will be glad to have YOUR opinion on this important topic and your name will be withheld if desired.

DISCUSSING the question of showrooms for plumbers with a prominent master plumber of Quebec province this week, Sanitary Engineer learned that another showroom is to be closed up on May 1 due to the unsatisfactory condition of affairs which is said to exist as between various branches of the industry. This master plumber has been conducting a showroom for the past ten years and has been in business for a total of nineteen years. He claims that up until two or three years ago the showroom was a paying proposition but that since that time the wholesalers have given no protection and are to-day in many cases selling direct to consumers at the equivalent price at which the plumber buys. This plumber claims that the margin of 20% which was formerly given on plumbing goods was sufficient to pay for the showroom cost and with adequate protection afforded by wholesalers, much business was developed through this medium.

The showroom stock carried by this master plumber averaged about $5,000 in value and rental of $150 per month was paid, despite all of which it was said to have been a paying proposition until wholesalers adopted a policy which gave no protection.

Will Lose Business

This master plumber was against the principle of confined showrooms to wholesalers, giving it as his opinion baesd on long experience, that the plumber can merchandise plumbing and heating goods through a showroom and increase the volume of sales thereby. He fully expects to lose a certain volume of business when he closes his showroom, and he is confident that this business will be lost to the trade altogether because what he loses will not be secured by the wholesaler.

From the foregoing it is evident that this plumber after long experience is confident that plumbers should operate individual showrooms, but another phase of this question has been brought out, namely the action which certain wholesalers are said to be taking which is bringing about much the same object as was outlined some time ago by a wholesaler in Sanitary Engineer.

It was pointed out that the average plumber operating a showroom could, if protected, effectively compete with the plumber who endeavors to curtail his costs by eliminating the cost of a showroom. The extra volume of business on both fixtures and installation work which the showroom produced, in the case of the master plumber interviewed, was described as quite sufficient to enable the meeting of competitive prices and still bring a fair profit. The volume of business would, of course, necessarily have to be fairly large to enable this to be done, and obviously it would not be possible to do so immediately after the showroom is opened. The process was described as quite similar to that of the retail store which found it necessary to work up a volume of business gradually through the exercise of merchandising principles. However it was pointed out that the plumber would have no incentive to merchandise plumbing equipment unless the wholesaler would provide the necessary protection.

Co-operative Publicity among Plumbers

Great Amount of Educational Work Which Needs to be Done Among the Public Concerning Plumbing and Heating Justifies Co-operative Local Campaigns Among P. and H. Contractors—Some Plans Which Have Been Proved by the National Trade Extension Bureau

THE man who would truly succeed, operating a comparatively small business in a big town community, must find some means of attracting the attention of possible customers. This means must be just as effective and just as certain as those used by the very large business enterprises. This proposition is not to be denied if the business is to expand and grow as it should.

And when we refer to larger business enterprises we do not necessarily mean larger plumbing and heating establishments. Every line of industry is your competitor, for they are all competing with you for that buyer's dollar. Therefore, the less you do in attracting the buyer's dollar your way, the easier is the other merchant's pathway.

According to the judgment and opinion of recognized authorities upon business matters, the average merchant or business man should spend from two to five per cent. of his gross annual sales on advertising. This has become accepted as a fact. In truth, under today's conditions, the business man who fails to accept this as a fact, and fails to proceed accordingly, can certainly look forward to disappointment in the volume of his sales and in the growth of his business.

But again, the volume of the sales of a business which is doing less than $50,000 a year, with these percentages, produces an advertising appropriation that it would hardly pay to invest in the large city newspapers, in individual advertising.

The foregoing are conditions which are presented in every line of business including the plumbing and heating trades. In every line, the competition between individual smaller enterprises is usually very keen. Consequently, the plumbing and heating industry can offer no exception to any rule which is safely general.

Take in any line of business effort. The very fact that competition is keen to secure the business which naturally exists, makes it just that much more certain that it would be wise for the business men in any particular line to co-operate, effectively and continuously, in an effort to produce a larger volume of trade for that particular line of business as a whole. In other words, when three or four men, fighting tooth

and nail to get one job, plenty of reason exists for those three or four men to effectively and constructively co-operate in the direction of creating a half a dozen other jobs.

To an average sensible man, it is only necessary to consider, very shortly, the foregoing proposition, in order to see that every intelligent business man ought to be willing to co-operate to the fullest possible extent, no matter how keenly he might, as an individual, compete for his share of the business so produced. Moreover, it does not take much thinking to arrive at the conclusion that co-operative effort of this sort—by producing more business for the trade as a whole—will inevitably bring about conditions that will very soon greatly reduce the evils of the over-keen competition, which are the direct results of a reduced volume of demand.

Education Needed

There is no business, in the whole catalogue of commercial effort, that is more in need of proper exploitation before the public than the plumbing and heating industry. There is no element in the plumbing and heating industry that stands in the position of benefiting from effective advertising as much as does the Plumbing and Heating Dealer.

The business facts and figures to prove this are at the command of any one who cares to make even the slightest investigation. Compared to almost any other equipment in the average modern dwelling, the plumbing and heating equipment, is ridiculously small in comparative cost, and hopelessly outclassed in the matter of extent, with reference to what is possible. That is true of new buildings. In the case of buildings already standing, it is almost a universal condition that where any replacements or improvements have been made, everything but the plumbing and heating equipment has been considered. This last has usually been allowed to remain just as originally installed, no matter how obsolete or antiquated it may have been.

The Worst Competition

Among the Plumbing and Heating Dealers everywhere, we hear much talk of competition. Seldom if ever, however, do we hear mention made of the name of the worst competitor that the Plumbing and Heating Dealer has. This competitor—worse by far than the fellow who forgets overhead, profit, and everything else in his eagerness to land a job—is lack of knowledge, on the part of the public at large, concerning the enormous value of modern sanitary and heating equipment in the way of economy, comfort and convenience.

Remove this lack of knowledge on the part of the public, and it will be found that the other kinds of competition will almost automatically cease to have cause for existence.

The co-operative "group" newspaper advertising campaign offers the Plumbing and Heating Dealers in any locality, a means of properly educating the public most effectively at an individual expense to the contractor which is trifling. By this means, the local association—or local group, where no association exists—can present to the public, a newspaper advertising campaign that will be impressive, both as to size and amount of space. Yet the individual contractor will find his expense no more—and perhaps even less—than the amount that would be represented by a proper and conservative advertising

(Continued on Page 24)

Have The Plumbing Right For Xmas.
C.R.HOBEN & Company
134 GRANVILLE ST.
Plumbers, Steam Fitters, Sheet Metal Workers, Tinsmiths,
Heating Engineers, Kitchen Furnishers.
PHONE SACKVILLE 1103
WHY PUZZLE YOUR HEAD?
McKelvey & Birch, Limited
SHOWROOM: 45 BROCK STREET
PHONE 227
BUILDING COSTS ARE DOWN
PIPING, PIPE FITTINGS, and PLUMBING SUPPLIES
WILLIAM RITCHIE
Non-Leakable Laundry Tubs
That is the kind we will install in your laundry—the kind that will not give you trouble after a few weeks or months of constant use. We have large, spacious tubs lined and finished in porcelain, enamel, etc. Better see them at our place.
R. Chestnut & Sons, Ltd.
Phoenix Square
H. W. Thorne, Mgr.
Plumbing Department
WHITE ENAMEL IS BEST
MOFFATT & PARR
Plumbers. Phone 531. Barrie
Plumbing on Monthly Payments
$10 down will put in your Plumbing System. Balance on monthly payments
W. J. WALSH
Phone 45
Dundas
King Street

A number of samples of local advertising as recently done by master plumbers, are shown herewith. This is specific advertising for the plumber's own business and is of a different nature to the co-operative advertising of an educational nature which is dealt with in this article. These will give plumbers some suggestions for attractive layout of ads dealing with bathroom fittings and accessories, laundry tubs, tinsmithing, etc.

Heating and Ventilating

Investigation of Warm Air Furnaces

Extensive Investigation Conducted by National Warm Air-Heating And Ventilation Association, and University of Illinois Reveals Many Interesting Points Concerning Capacity And Efficiency of Various Heating Systems

(Reproduced in Sanitary Engineer by special permission Engineering Experiment Station, University of Illinois)

AN EXTENSIVE investigation of warm air furnaces and heating systems has been conducted by the National Air Heating and Ventilation Association and the University of Illinois. Some of the previous bulletins issued in connection with this investigation have appeared in Sanitary Engineer but the bulletin which is commenced herewith deals with the work recently accomplished. A complete outline of the work done in connection with pipe and pipeless furnaces, will be given in this and succeeding issues of Sanitary Engineer.

Objects of the Investigation

The principal objects of the investigation are briefly stated as follows:

(1) To determine the efficiency and capacity of commercial warm-air furnaces under conditions similar to those existing in actual installations, with leaders, stacks, and registers, to form a complete system.

(2) To determine satisfactory and simple methods for rating furnaces so that the proper size and type of furnace can be definitely selected for the service required.

(3) To determine methods of increasing the efficiency and capacity of furnace heating equipment, and the advantages or desirability of certain types of design.

(4) To determine the heat losses in furnace heating systems and the value of insulating materials as affecting the economy of the furnace, or the leaders and stacks, and finally of the system as a whole.

(5) To determine the proper sizes and proportions of leaders, stacks, and registers supplying air to first, second, and third floors.

(6) To determine the friction losses in cold air or recirculating ducts and registers, and their proper size, proportions, and arrangement or location.

(7) Eventually, to make a study and comparison of outside and inside air cir-

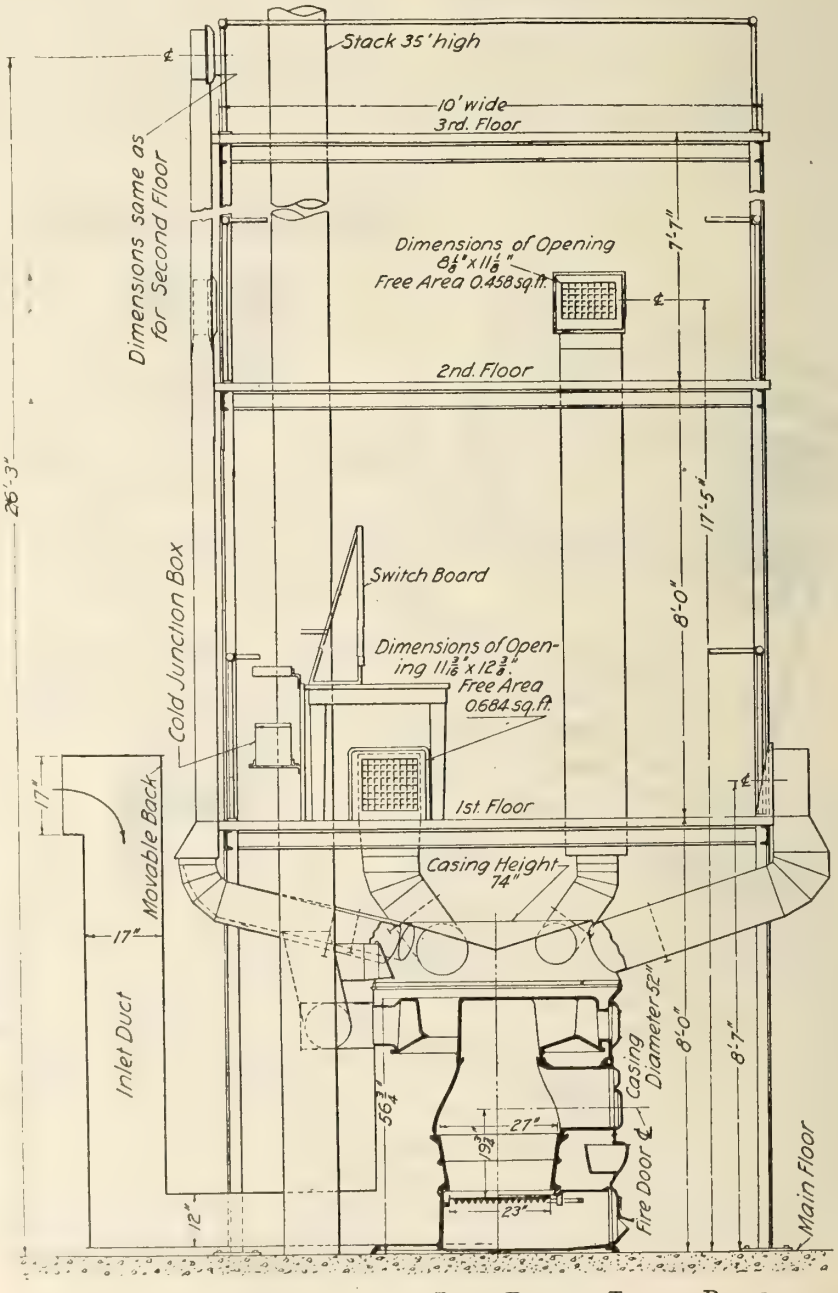


FIG. 3. SECTIONAL ELEVATION OF PIPED FURNACE TESTING PLANT

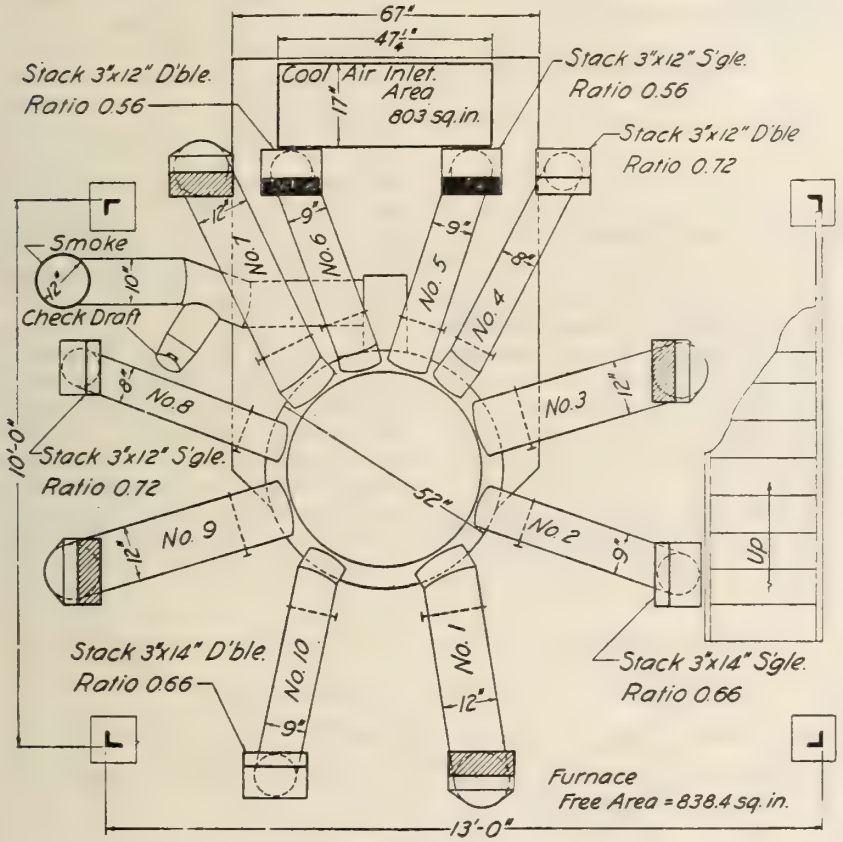
culation as affecting the economy and operation of furnace systems.

In addition to these, the original objects of the investigation, there has been added the investigation of ordinary gravity type furnaces operating with small motor driven fan units. Such units are not intended for continuous service, but will merely serve to accelerate the air flow in cold weather, and temporarily to increase the capacity of a gravity system. It should be made clear that this work with small fan units does not include, at present, the more elaborate "fan-furnace" systems which are installed in large buildings to provide for both heating and ventilation.

Discussion of the Problem and Methods Employed

It should be noted at the outset of this discussion that the fundamental ideas involved in the methods used in this investigation, as well as the furnace plant itself and its essential features, were developed and put into operation by the Department of Mechanical Engineering of the University of Illinois in the spring of 1918. This preliminary work soon developed the fact that very little could be accomplished in the investigation of warm-air furnaces and furnace systems unless the furnaces were operated under the natural gravity flow conditions which exist in the actual installations. The research aspects of the problem then became very definite, and may briefly be stated under two general heads:

1. The exact measurement of large quantities of air, flowing at very low velocities, under extremely small heads, but at atmospheric pressure, and usually at high temperature; this measurement, moreover, must be made just as the air enters or leaves a register face, and, in piped furnace work, at a number of widely separated register faces.



	Leaders			Stacks		Registers	
	No.	Size	Area	Dimensions	Type	Dimensions	Free Area
1st Floor	1	12 in.	113 sq. in.	——	Asbestos Covered	11 13/16 in. x 12 3/8 in.	0.684 sq ft
	3	12 in.	113 sq. in.	——		" "	"
	7	12 in.	113 sq. in.	——		" "	"
	9	12 in.	113 sq. in.	——		" "	"
2nd Floor	2	9 in.	64 sq. in.	3 in. x 14 in.	S'gle.	8 1/8 in. x 11 1/8 in.	0.458 sq. ft.
	4	8 in.	50 sq. in.	3 in. x 12 in	D'ble.	" "	"
	8	8 in.	50 sq. in.	3 in. x 12 in.	S'gle.	" "	"
	10	9 in.	64 sq. in.	3 in. x 14 in.	D'ble	" "	"
3rd Floor	5	9 in.	64 sq. in.	3 in. x 12 in.	S'gle	" "	"
	6	9 in.	64 sq. in.	3 in. x 12 in.	D'ble	" "	"
Leader Area: 1st. Fl. 452 sq. in., 2nd 228 sq. in., 3rd. 128 sq. in. Total 808 sq. in.							
Percent Leader Area: 1st. Fl. 55.9, 2nd. 28.2, 3rd. 15.8.							

FIG. 4. FLOOR PLAN AND DIMENSION TABLE FOR PIPED FURNACE TESTING PLANT

2. The exact measurement of the temperature of air flowing over hot metallic surfaces, at points where the temperature measuring element is in fairly close proximity to the hot surface; this case, also, requires additional temperature readings to be taken simultaneously at many points.

These two problems have occupied the research staff almost constantly since the work began. The first problem has been solved by an indirect method, using anemometers and an elaborate calibrating plant. The second problem has been solved by the use of thermocouples and a potentiometer, after calibrating all couples in position, and determining the correction for radiation for each couple exposed to hot surfaces.

II. Summary of Principal Results to Date

4. General Classification of Results.— Any discussion of the results so far obtained by the furnace research staff can be divided naturally into two parts, the first dealing with the special apparatus and methods that have been developed for doing the testing work, and the second with the actual performance data obtained from the tests which have been made on various kinds of furnace equipment.

5. Special Apparatus and Methods.— The measurement of air velocity and the temperature of air under the particular conditions existing in warm-air furnace heating by natural circulation has required the erection of full-size plants operating under actual conditions and the development of special testing equipment and methods which are briefly outlined in the following paragraphs. The itemized list of results here given will also serve as a general index in finding most of the information given in the bulletin.

(1) A complete three storey furnace heating plant with 10 leaders, stacks, and registers operating by natural circulation on re-circulating air has been erected and is now in operation.

(2) A complete pipeless furnace plant of the single register type also operating by natural circulation on recirculated air has been erected and is now in operation.

(3) Methods of operating these plants under uniform conditions, using any solid fuel, so that reliable test data may be secured, have been developed and perfected. This includes special temperature regulating devices operating by automatic draft control, which have been found of prime importance in this work.

(4) A satisfactory method of making accurate measurements of air temperatures in close proximity to hot furnace castings has finally been perfected. This involved the determination of the radiation effect of such castings on small thermocouples, the measurement of the castings temperature and the development of an air temperature-rise indicator of great sensitiveness.

(5) Methods for measuring the true amount of air issuing from register faces at low velocity have been perfected

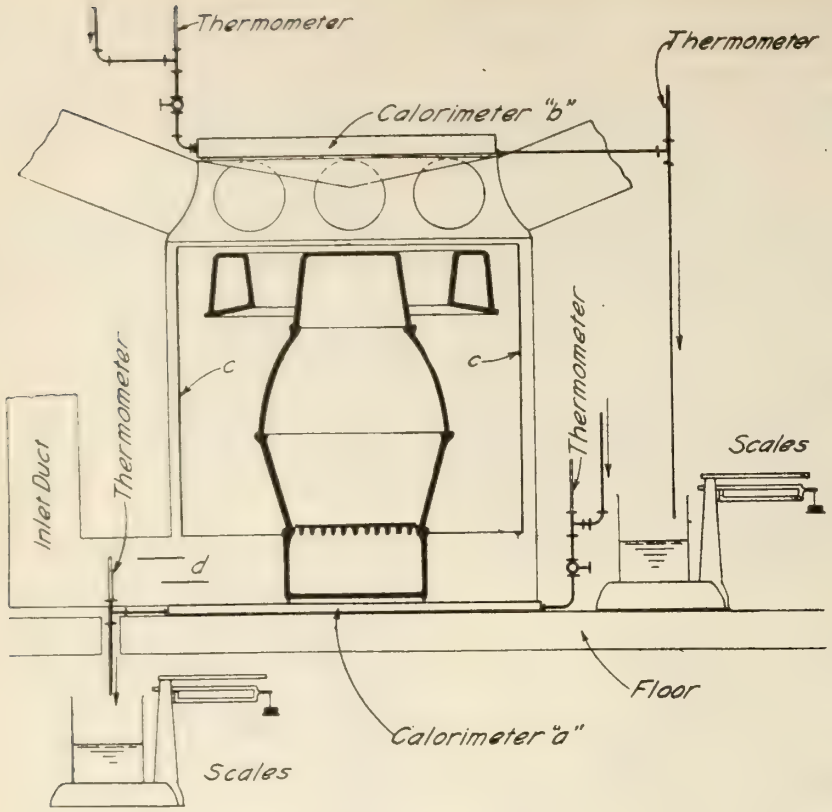


FIG. 5. AUXILIARY TESTING EQUIPMENT FOR PIPED FURNACE

for both piped and pipeless furnaces. Similar methods have been developed for checking the amount of air entering a furnace at the same time.

(6) A positive and fundamental method of calibrating all air measuring instruments used in this work against **weight of air**, with an accuracy well within one per cent., has been developed, and is always available.

(7) A special manometer reading directly to 0.001 of an inch head of alcohol has been developed and four of these gauges are now in use.

Performance Data and Results Obtained from Tests

The tests so far run have covered a wide range, and include not only tests on the main plants, but also tests on much of the auxiliary equipment used in furnace heating.

(1) Complete testing codes for both piped and pipeless furnaces have been drawn up, tried out in detail, and are now before the American Society of Heating and Ventilating Engineers.

(2) The measurement of air temperatures across an air stream such as that flowing in furnace leaders or stacks has been made, and the differences between the air and the pipe temperatures accurately determined.

(3) The heat loss from a pipeless furnace has been determined.

(4) The heat insulating efficiency of most of the commercial furnace pipe and casing coverings has been measured.

(5) The investigation of the relative value of solid and slotted fire pots has been begun and results with furnaces operating on hard and soft coal obtained.

(6) The application of small fan units to ordinary furnace installations has been made one of the objects of the investigation and the results of the preliminary investigation are included in this report.

(7) A study of the proper proportions for leaders and stacks has been made, and the air carrying capacities of leaders and stacks with varying relations of cross sectional area have been ascertained.

(8) The effect of one type of register grille on the air delivering capacity of a pipeless furnace has been determined. The study of register grilles in general is now in progress.

(9) The effect of height of register, on furnace or leader capacity has also been determined for the piped furnace.

(10) Typical performance curves for both piped and pipeless furnaces, showing the relation between combustion rate, draft, heating capacity, air temperature at registers, and efficiency, have been obtained.

(11) Comparative tests of a pipeless furnace operating first on hard coal and then on soft coal have been made, but complete performance curves on soft coal are not yet available.

The Piped Furnace Plant

General Description of plant—For sectional elevation and plan of this plant see Figs. 3 and 4.

(a) The main switch board and the instruments for reading temperatures have been moved from the first floor of the plant (Fig. 3) to the main floor of the laboratory. This change gives a much steadier mounting for the instruments, and also makes it possible to use the switch board for temperature readings on the other two plants as well as on the piped furnace plant.

(b) A special closed calorimeter tank, a, (Fig. 5) of the same diameter as the furnace and one inch high has been placed under the furnace for determining the radiation loss from the fuel bed or fire-pot to the floor. This tank is supplied with water which intercepts the radiant heat that would otherwise enter the floor, and thus makes it possible to determine the magnitude of the loss to the floor.

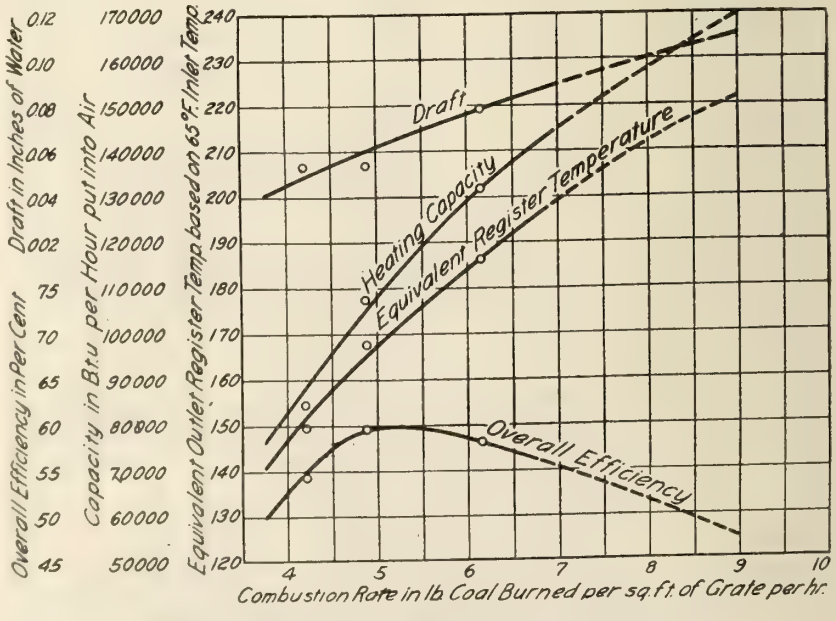

Overall Efficiency in Per Cent.
Draft in Inches of Water
Capacity in B.t.u. per Hour put into Air
Equivalent Outlet Register Temp. based on 65°F. Inlet Temp.
Draft
Heating Capacity
Equivalent Register Temperature
Overall Efficiency
Combustion Rate in lb. Coal Burned per sq. ft. of Grate per hr.

FIG. 6. PERFORMANCE CURVES FOR PIPED FURNACE

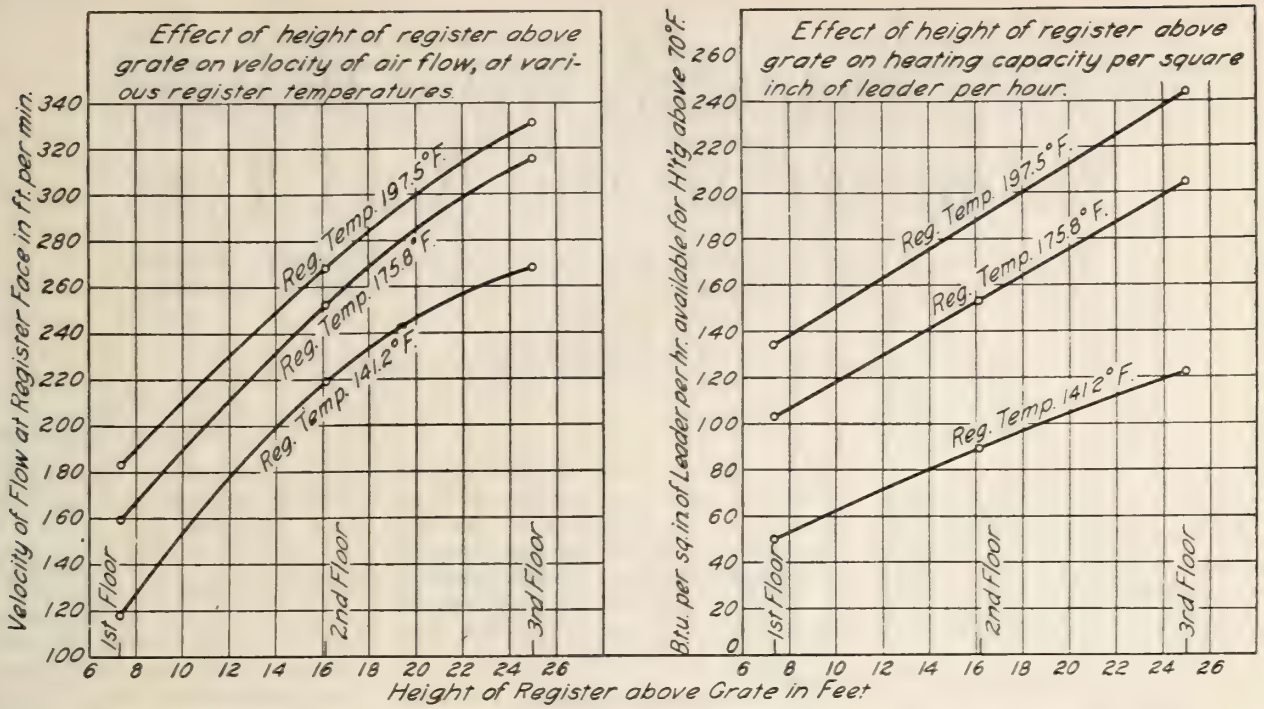

Effect of height of register above grate on velocity of air flow, at various register temperatures.
Velocity of Flow at Register Face in ft. per min.
Reg. Temp. 197.5° F.
Reg. Temp. 175.8° F.
Reg. Temp. 141.2° F.
1st Floor
2nd Floor
3rd Floor
Effect of height of register above grate on heating capacity per square inch of leader per hour.
B.t.u. per sq. in of Leader per hr. available for H'tg above 70° F.
Height of Register above Grate in Feet

Fig 7. Effect of Height of Register above Grate upon Velocity of Air Flow and Heating Capacity

(c) An open calorimeter tank, b, has been placed on top of the furnace bonnet (Fig 5) for determining the radiation loss from the top of the bonnet. This tank is supplied with water and functions in much the same way as the bottom tank.

(d) A black iron adjustable shield, c, (Fig. 5) has been placed just inside the furnace casing so that it reaches from grate level to under side of radiator. Its position can be changed, by long screws, in order to increase or diminish the distance between this shield and the casing. This shield acts as secondary heating surface, since it intercepts the radiant heat from the fire-pot and combustion chamber so that this heat may be transferred to the air passing up through the furnace.

(e) Two horizontal curved shields, d, of black iron (Fig. 5) have been inserted in the recirculating duct at the point where this duct enters the furnace casing. These shields also intercept radiant heat and transfer this heat to the entering air in exactly the same way as indicated in (d) for the circular shield.

The balance of the main plant, including all leaders, stacks, and registers, has not been changed, and the original three-storey steel structure erected in the Mechanical Engineering Laboratory is still in place. This structure merely serves as the working skeleton of a house and carries the stacks and registers which run to the various floors. All important dimensions are given in the sectional elevation and plan (Fig. 3 and 4), which show the equipment in use on May 1, 1919. These figures are taken from a former bulletin and repeated here for use in studying the performance curves prepared from three tests on this original plant and shown in Fig. 6. A ten-leader plant is still in use and all stacks have been cased in to simulate furred wall conditions. One of the four stacks to the second floor and one of the two stacks running to the third floor are single, but all other stacks are double wall with 5/16-inch air space. The single stacks were made 3-inch deep instead of 3½-inch in order to make them comparable with double wall stacks.

8. **Results of Tests.**—The remodelled main plant as described in the preceding paragraphs has not been subjected to a complete series of tests. A table of the results of five tests on the original main plant will be found in a former bulletin and the results from three of these tests Nos. A-1, A-2, and A-3, have been presented in graphical form (Fig. 6.)

Performance Curves from Piped Furnace Plant

It has been found practically impossible to make satisfactory comparisons between two or more types of furnaces from a few isolated tests. In fact, comparisons on such a basis may prove very unsatisfactory and lead to erroneous conclusions.

If, on the other hand, the results of a series of tests are plotted on co-ordinate paper, and the performance curves of the furnace over its entire range of practical operation are drawn, the relation of all factors affecting performance is clearly indicated. Such a series of performance curves is given in Fig. 6 for the piped furnace plant. The rate of combustion is shown along the horizontal axis, and the various curves indicate:

(a) the draft necessary at the smoke outlet, in inches of water;

(b) the heating capacity at bonnet in B.t.u. per hour;

(c) the equivalent register temperature at the register faces based an 65 deg. F. inlet temperature at the recirculating register;

(d) the efficiency of the furnace in per cent., which is the ratio of the heat put into the air as it leaves the furnace bonnet to the heat value of the coal burned.

As a discussion of a similar set of curves for a pipeless furnace is given in Section IV, reference to that discussion will readily show how to interpret the curves.

Effect of Air Temperature at Register Face and Height of Register above Furnace on Leader Capacity

One of the most important results of the work done on the piped furnace plant was the determination of the heat carrying capacity of first, second, and third floor leaders and stacks. These results were given in the first report of progress, but they are so important that it seems advisable to repeat part of the discussion and the plotted results in this bulletin.

Curves (Figs. 7 and 8) have been plotted from data obtained in seven tests on the main plant, showing the relation between the register temperatures on any floor, and the B.t.u. carried per square inch of leader pipe per hour to each of these floors.

(To be continued)

QUESTIONS AND ANSWERS

Messrs. E. T. Wright Company, Limited, Hamilton, Ontario: Can you give us the names of manufacturers of closet hinges in Canada?

Answer. The Canadian Brass Company, Galt, Ontario.

The Stratford Brass Company, Stratford, Ontario.

Salesmanship Now Being Subjected to the Acid Test

Many men have wisdom but don't know how to apply it—Industrial Activity directly dependent upon salesmen's efficiency—No use waiting for something to "turn up."

By F. E. MUTTON
President and General Manager International Business Machines Co., Ltd.

Continued from last week

Who supervises the District Managers? The Sales Manager.

Who supervises the Sales Manager? The General Manager.

Who supervises the General Manager? The President.

Who supervises the President? The Executive Committee.

Who supervises the Executive Committee? The Directors.

Then last, but not least, who supervises the Directors? The shareholders.

Enthusiasm Injections

One of the reasons salesmen fall down is because they are not supervised closely enough. I do not mean bossed. We do not know the meaning of "Boss" in our organization.

Supervision means, for one thing, that you get out with the salesmen occasionally, especially the men in the Provincial territory, who are meeting to-day probably the greatest resistance in the history of trade in this country. They are only human, they get lonesome, they have gone a week perhaps without an order. The greatest asset for a salesman to have is a big stout heart, not knowing the meaning of "Quit." Well, that man needs supervision, it might be termed, or Assistance, a new injection of Enthusiasm, which he can only get from an executive higher up.

I have recently returned from a trip to the Coast. I am running the manufacturing end as well as the selling end, but there is nothing else so important to my mind as going out and visiting these men, spending a day or two or three with them, getting that heart-to-heart touch that they appreciate so much—I know it because I have been there and received that treatment.

Necessity For Training

As to training. How few firms seem to realize its necessity. I have had men come to me who seem to have been given a price list and an order book, and left to grab any further knowledge they could out of the atmosphere. Those salesmen are going to run up against other men in parallel lines who have been trained, and we have got to see to it that our men are equipped to meet these trained men. If in your own judgment the new salesman is the right material for your organization, then it is worth spending time and money to give him the proper ammunition.

Peddling Troubles

It is important to train salesmen to know that it is no earthly use telling their troubles to fellow salesmen.

To salesmen I say, if you do not agree with the policy of the house, don't go to Bill Jones about it, he cannot cure it; go to the General Manager, and if he does not satisfy you, go to the President.

Get your men to have enough confidence in you and the house to know that they can do that. Many good sales organizations are wrecked by "gossip" breeding disloyalty, so have them feel that if they think they have any complaint they can come to you, and either they will "sell" you that they are right or you will "sell" them that they are wrong.

"People are only suspicious of things they do not understand." It is of primary importance in training salesmen that they should know and thoroughly understand the policy of the house. Then it will have their support.

Constructive Help

One of the chief duties of the Sales Manager is to give his men constructive help in their work. If a sales manager cannot help his salesmen make sales, what is he for? I have three sales managers in my business, one for each division. Each of them when he visits an agency helps the man there to make sales. If he could not he would not be the sales manager. I do not mean for him to go out and canvass the stores. I mean he is everlastingly gathering material and thinking, so that he has something to take out with him and say, "Put this down in your note book."

A Talk On Cards

I have a little talk on cards for our salesmen. I am a great believer in teaching through the eye. Some of these cards are:

Success is Simple. You can talk five minutes on that to a Convention.

Service. Action of one on behalf of another in the interest of both.

Add Yourself Up. Don't overlook the weak spot—we all have a lot of them.

Think In Big Figures. Teach the salesman who is selling two thousand to think of ten thousand.

We Are Only As Big As We Think. Let him look at that a minute.

Increase Health And Knowledge. The salesman can never afford to stop doing that.

Men Make The Business. You can take the biggest concern in Canada and burn down the whole institution, and they could collect insurance and build up again, but if you took my seventy-two salesmen I would have some job to get things going again. Trained men are of more value than machinery and plant. Let them know how much you value them.

Teach Salesmen Not To Guess, to know what they are talking about.

Cut Out Gossip, Fault-finding And Destructive Criticism. What is wanted is Constructive Criticism.

A Man Is Known By The Company He Keeps, And A Company Is Known By The Men It Keeps.

The Open Mind Is The Growing Mind.

Men Should Not Be Employed At Any Task Which A Machine Can Perform.

Self Analysis. Teach the Salesman to analyze himself, the most helpful thing he can do.

Better To Aim At Perfection And Miss It Than To Aim At Imperfection And Hit It.

Organize The Brains of Your Organization.

Don't Make The Same Mistake Twice! But If You Never Make Any Mistakes You Are No Good.

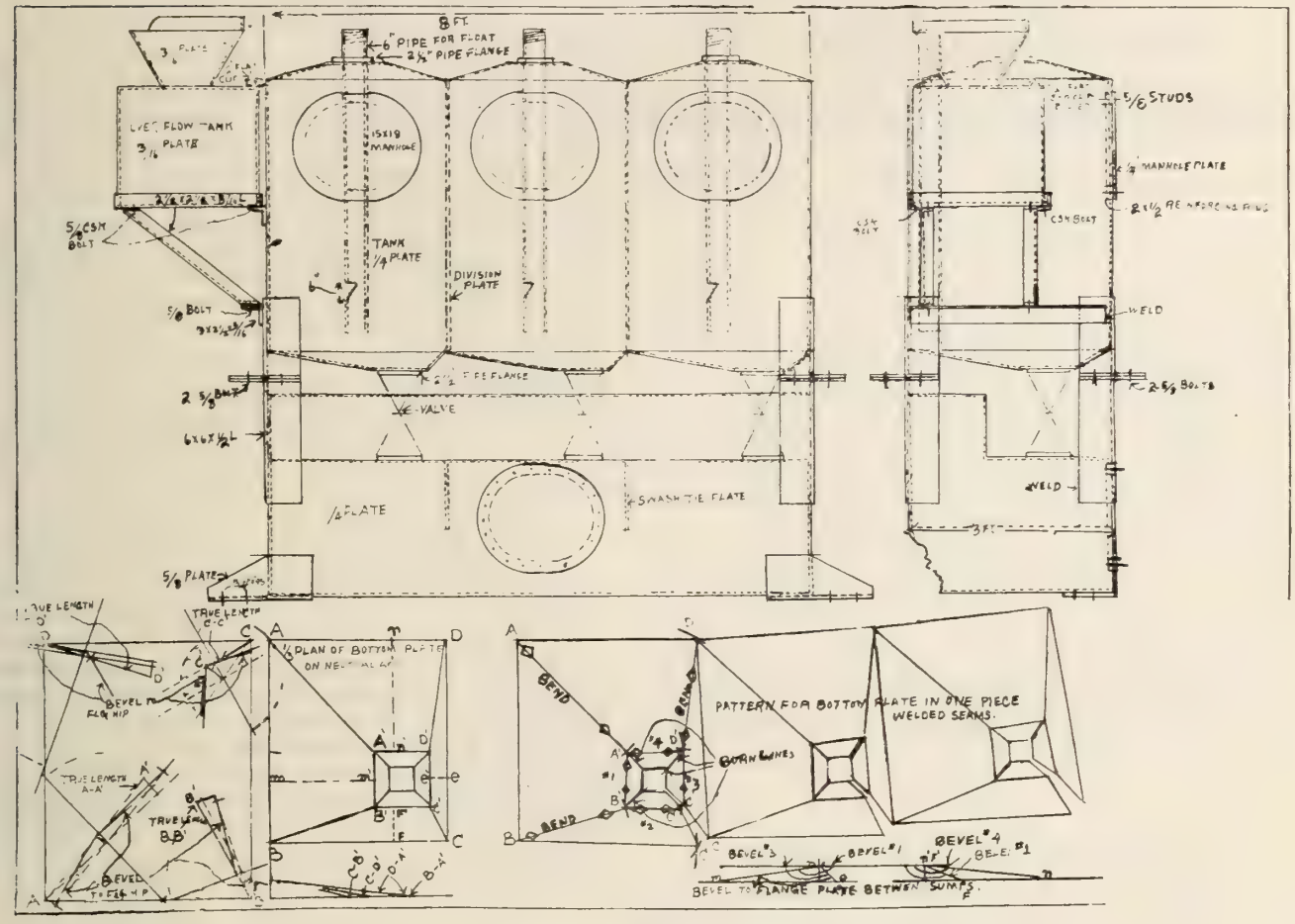
Co-operation.

Concentration on the work you are doing.

(Continued on Page 21)

Patterns for Tank Bottoms

Prepared for Sanitary Engineer by O. W. KOTHE, Principal St. Louis Technical Institute, St. Louis, Missouri.



Patterns for Tank Bottoms

ABOARD ship, especially some of the naval craft, few tanks are made as shown in this drawing, where several individual tanks are placed in a line and each fed with a pipe line and valve.

As these tanks are square or rectangular, whichever the case may be, the bottoms have peculiar shapes, being placed off center in one corner as our plan for the first tank shows.

Attention is called to the construction details of how the angle irons are bent and attached in supporting the work, also many other details as the overflow tank and hopper, brackets, etc.

To set out the pattern for the bottom, a plan is drawn as A-B-C-D and then the hip lines are determined by the diagram which is shown below. Where C-B' C-D'; D-A' and B-A' are the true lengths for the line in plan. The rise of the bottom is not very pronounced as the elevation shows. By means of these triangles the patterns are laid out as shown to the right.

It is understood that where metal of a quarter thickness or so is used, then a neutral axis line must be used to develop the working drawing.

This neutral axis is the center line of plate and it does not matter whether the plate is a 1-16 of an inch thick or 10 or 12 inches thick.

This central line is used for measuring and constructing the working drawing to. Otherwise the same geometrical treatment is required for heavy plate as for light metal.

Where true angles are required for the hips as in these bottoms, they can be determined as shown at the left of plan. An enlarged treatment on determining the true bellows of hips will be taken up in the later drawings showing other features, as it is a little small to see details by the scale of our drawing.

Its main feature is to show to the extent laying out work is met with on ships, and in fact problems of many peculiar shapes must be worked out in marine works as well as on land.

QUEBEC TO COMPETE FOR NEW INDUSTRIES WITH EQUAL TESTING

Montreal.—Complaining that the Province of Quebec must now compete with its sister province for new industries at a disadvantage, because it is not allowed to grant free sites and exemption from taxation to prospective manufacturers, a delegation representing trade and municipal bodies, recently waited on the Prime Minister in the Montreal Government offices. Premier Taschereau stated definitely that he would do his utmost to remedy the situation and Legislation may be passed allowing the province to offer these concessions to industries who contemplate locating in Quebec. It is thought, however, that bonuses will not be allowed.

Catalogues and Booklets

"HAPPY THOUGHT" RANGES

Another catalogue recently issued by the Happy Thought Foundry Company, Limited, Brantford, Ontario, covers a line of cast and steel ranges. This book is very highly and effectively finished throughout, containing both detail information and many illustrations.

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IT IS ESTIMATED that ninety per cent. of the men unemployed this winter are ordinarily associated with some branch of the building industry. This indicates another phase of the importance of this industry in the general prosperity of the country. Various organizations and other influences are at work to bring about a resumption of building on a broader scale in the coming Spring. Secretary George Gander, of the Toronto Builders' Exchange, has stated that building costs are now 35 per cent. below the peak so there should be some encouragement on this score. It must not be thought, however, that building has fallen off to any great extent, for building to the value of $240,000,000 was done in Canada during 1921, which, taking into consideration the decline in prices as compared with 1920, revealed a bigger volume of building last year than in the immediately preceding years. The anticipated increase in building this year, if it materializes, will not have to go far ahead to create a record.

* * * *

Valuable Opportunities Offering

THE PLANS of the Ontario Agricultural College for the education of farmers along the lines of rural water supply, are outlined elsewhere in this issue. A reading of these plans should indicate to the plumber a valuable opportunity to link up with this effort and so increase the field of trade. The present is a good time to link up with this plan because of the fact that the farmer now has time to consider such questions and the present time is quite suitable to proceed with the actual installation of such a system.

There has been a great need for some educational work along the line now being conducted by the O. A. C. and also by the Provincial Department of Agriculture and already tangible results have been secured. Obviously the education of the farmer of to-morrow who is attending the college, and the education of between 200 and 300 farmers in short courses each summer, is bound to bring forth results. The subject is a broad one including not only the education of the farmer, but the investigation of various systems so as to be in position to make recommendations and a thorough study of the method of installation needed with various systems. The question of standardizing systems and methods of installation is now being taken up.

Meanwhile active participation on the part of the plumber in this campaign should open up a valuable field of business without waiting for a revival of building. The possibilities for the sale of plumbing equipment are very great once a farmer has installed a water system and having in mind the fact that such installations will cost anywhere in the neighborhood of six hundred dollars, this means an opportunity for much profitable business to the plumber. It is a class of business which is not difficult to secure if satisfactory service can be given, for the advantages far outweigh the cost and every new system sold stands as a constant advertisement to other farmers.

* * * *

Where the Farmer Comes in

THE REDUCED buying power of the average farmer is to some extent reflected in the plumbing and other trades of the rural districts of Canada. The situation in these districts presents a problem which requires some consideration and in the solution of which the master plumber may play a part. In the agricultural sections as a whole we see the farmer battling against indebtednes with reduced ability to buy for home and farm, and we see him when he is forced to buy for his needs, paying, as a rule, prices much out of proportion to those which he secures on what he has to sell. There must be some concentration upon measures for improvement and the farmer should realize that there will be little relief, from discussing tariffs and trying to effect changes through the administration of the country. Progressive farmers to-day realize that sound progress and lasting prosperity is bound up in the land itself; intensive scientific cultivation is what is needed.

The intelligent attention of everyone must be given both to the development of industry and agriculture. True, the latter has undergone more severe liquidation recently than the former, but both will reach their proper proportion in short time and each will have to effect bigger production on an economical basis so that consumption and production will be in sufficient volume to carry the business of the country along on the crest of the wave of progress.

Accelerated business conditions cannot be expected until conditions in the agricultural sections as well as the industrial sections, improve. The farmer, like the industrial worker, must come to a realization that happiness and prosperity are not bound up in governmental action but depends upon the skill, attention and aggressiveness of the individual in his immediate task.

* * * *

Courage

THE WORD of command given by an officer to his men is not to be questioned. It is to be obeyed. The men must go forward at the command into the situations from which they might flee if controlled by individual choice.

We speak of this because no quality is more essential now in handling credit than courage such as will stand up against criticism and against all unfair attacks and will not shrink when duty points the way.

At a time when business runs low, pressure is exerted upon merchants to grant special concessions. Here courage is required. If it is not right to grant a credit on the evidence obtained or submitted, then no amount of pressure should be allowed to alter the decision and cause undue chances to be taken.

We are seeing too many cases of real cowardice in the granting of credit in some lines of business; too many instances where the judgment of the plumber has been hasty, due to pressure.

It is better to yield up a position than to yield up conscience and sound principles should guide the granting of credit, for only thus shall legitimate merchandising be defended and the honorable and efficient merchant protected against the unfair competition of the dishonest and incompetent.

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights —Keep the Entire Series Where It May Be Referred To And Studied

Article No. 47 of Series; Illustration 56-57.

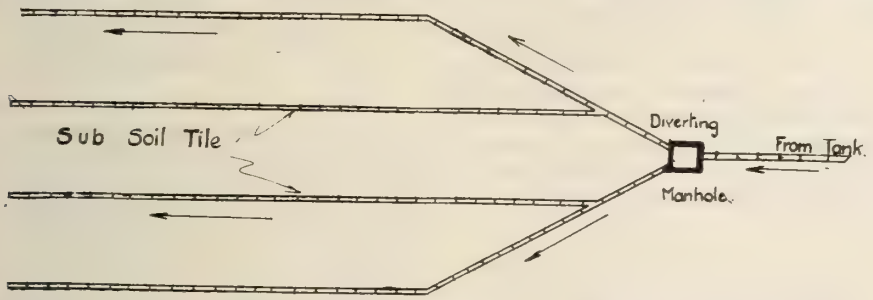


FIG 56.

THE usual method of treating the septic tank effluent from a small private installation in good porous soil is shown in Fig. 56. The sewage is automatically discharged at certain intervals by the syphon in the second chamber through the discharge pipe

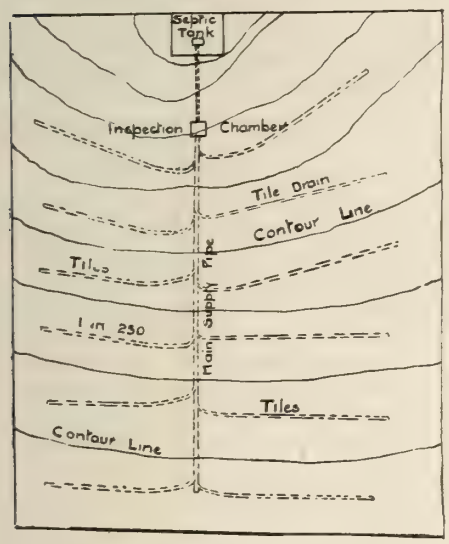


FIG. 57.

into the agricultural open-jointed tile drains. These drains should be 3 or 4 inches in diameter and laid as near the surface as possible. The distance apart or the number of feet of tile required depends entirely upon the nature of the soil. In light sandy soil the tile drains may be laid 30 feet centres and twenty lineal feet is ample for purification purposes, whereas in heavy clay soil the tile should be laid at not more than 10 feet centres or 40 to 50 lineal feet of tile is required for each person.

Fig 57 shows the arrangements of tile drainage on sloping ground. The automatic syphon discharges into an inspection chamber and the tile drains are laid parallel to the contour or grade of the land, which allows the tiles being laid with the required fall at minimum cost.

"LIKES CANADA'S SALES TAX" SAYS R. T. CRANE, JR.

Montreal.—"I think the Inter-Allied debts should be wiped out completely. It is the best remedy for the present international situation. Such a step would help business and give industry a chance to start up again," declared Richard T. Crane, Jr., president of Crane, Limited, Montreal, and of the Crane Company, Chicago, who is here for a few days doing inspection work in connection with his plant here, and the construction of the new crane office building on Beaver Hall Hill.

"Canada is a great country," continued Mr. Crane. "Its possibilities are wonderful, and with the straightening out of world conditions a greater appreciation of its resources and facilities will be recognized. But at the present time we are just finding our feet again. Things are commencing to improve, and it will be a while yet before a normal state prevails and the world settles down to a business career again."

The worst evil of the times in the United States is the taxation law. "Its iniquities are innumerable and until such time as they are amended and put on a wholesome basis, like your system in Canada, unemployment will be large. We have the income tax system in operation in the States," he added, "and it is not fair. The only equitable tax is the sales tax, like that which is in operation in Canada. I believe we will have it enforced yet. The business tax is responsible for the unemployment because business men cannot go ahead when all their surpluses are eaten up by taxation."

WILL SOON NEED PUMPS

London, Ont.—In connection with work that has been undertaken by the Water Commissioners to increase the city's water supply, General Manager E. V. Buchanan pointed out to Sanitary Engineer that the sinking of preliminary test wells had been so satisfactory that it is decided to continue this work and in the spring the most promising wells will be connected up and pumps. Prices on pumps both horizontal and vertical will be wanted before long.

In connection with the improvements that are being made in the city's waterworks system, work is now in progress on an aerator and settling basin at the Horton St. pumping station and a filtration system is also being constructed.

The Water Commissioners have worked out a very successful scheme for saving several million gallons of drinking water daily. By constructing a small dam in an old mill race they have a natural reservoir of river water. This is pumped to supply the requirements of the locomotives, the railways being a good customer for water. The river water being softer than the drinking supply is better for the boilers and in addition does not deplete the city reservoir.

WESTON TO MODERNIZE TOWN'S WATER SYSTEM

Weston, Ont.—Plans for repairing and extending the water system were presented to the Town Council by members of the Water, Power and Light Commission. The commission proposes to line the reservoir with concrete, and generally bring the system up to date. The cost is estimated at $17,000.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

NEW FIRMS

Ottawa, Ont.—Mr. Newton has commenced a plumbing business in connection with his hardware store at 1098 Wellington St.

RETURN TO PLUMBING BUSINESS

T. J. O'Heir, former comptroller, and George G. Halcrow, M. L. A., have gone into business together at their old occupation of plumbing. The former verified this announcement and indicate that he was finished with public life.

FIRE LOSS

Montreal.—H. E. Trafford & Co., plumbers, have suffered fire loss.

OBITUARY

The death occurred in Montreal of John O'Rourke, who conducted a plumbing and steamfitting business at 1051 St. Catharine St., East.

MOVE THEIR OFFICE

Kaus.ine Co., Ltd., of Toronto, Water Supply & Sewage Disposal Systems, have moved from 28 Eastern Ave. to 164 Bay St.

TO OPEN WINNIPEG BRANCH

The Canadian Asbestos Co. announce that they will shortly open a Winnipeg branch to take care of their Western business. Officials of the company are now on their way to arrange the details.

SMITH'S FALLS ORDERED TO FILTER ITS WATER

Brockville, Ont.—The provincial board of health has served notice on the town of Smith's Falls that it must reach a definite decision regarding the installation of a filtration plant for its water supply or suffer the penalty imposed by law. The water supply is now secured from the Rideau river.

KINGSTON SANITARY INSPECTION

Kingston, Ont.—At the meeting of the City Health Committee, it was decided to recommend that Eugene Sleeth, late of the 21st Battalion, be appointed Sanitary Inspector, to fill the position left vacant by the death of the late W. H. Carson.

The members of the committee felt that in view of the feeling of members of Council that a returned man should be given the preference for the position, in case he had the necessary qualifications, the Committee yesterday considered the applications first of those coming from ex-soldiers.

QUEBEC BUILDERS EXCHANGE ISSUE PAPER

Sanitary Engineer has received from E. G. Brosseau, plumber, Quebec City, a copy of a new paper being published by the Builders Exchange of Quebec City, of which Mr. Brousseau is an official.

CONTRACT AWARDED

Thomas Jackson & Son, Winnipeg, are awarded a contract by the provincial government for installation of a sewer, approximately one mile long, from the Selkirk asylum to the river, involving a total expenditure of $30,000.

CONSTRUCTION CONTRACTS IN CANADA IN YEAR 1921 VALUED AT $240,000,000

The value of construction contracts in Canada in 1921, was $240,000,000, as compared with $255,000,000 in 1920, $190,000,000 in 1910, and $99,000,000 in 1908. However, if price recessions in material and labor costs are taken into consideration, the volume of new construction undertaken during 1921 was many millions of dollars greater than the 1920 total.

PORT CREDIT WATERWORKS TO BE STARTED VERY SOON

Port Credit.—Preliminary work for the new Port Credit waterworks system will be rushed through in order that active work may be commenced as soon as the frost is out of the ground. All attempts to prevent the water system being installed have failed. It is hoped to have the plant in operation by next fall. The whole system is estimated to cost $110,000—$60,000 for the central plant and $50,000 for the distribution system.

TWO LARGE COLLECTOR SEWERS FOR MONTREAL

Montreal.—The construction of two large collector sewers has been decided upon by the city's executive committee, plans for which are practically complete, and work will commence as soon as possible. One sewer will be in St. Henri-St. Cunegonde, annealed portions of the city in which the sewerage system is very antiquated. The other will be built on Boulevard Gouin and will take care of the rapidly growing northern section on the city. Both sewers will join up with the present system.

It is understood that the committee's action was hastened by the fact that while the sewers in themselves are badly needed, their building will give employment to hundreds of men on the actual work and in factories supplying material, thus relieving the unemployment to some extent.

$600,000 FOR CHATHAM WATERWORKS

Chatham, Ont.—The much debated question of the source of Chatham's future water supply promises to be one of the main topics of discussion in municipal circles during the present year.

The controversy has been started by a decision on the part of the new water commissioners to ask the ratepayers of Chatham to pass a by-law granting $600,000 for the purpose of erecting a new waterworks system. Nothing is said in the resolution as to whether this implies going to Lake Erie for water, or continuing to take the supply from the Thames. That question will be settled later, after the board receives expert advice from engineers and health experts.

It will take a whole year to secure all the data on the question, it is estimated, and in the event of the by-law passing the electors next November, it will be 1925 or 1926 before the new water works system can be ready for use.

WOULD ERECT PLANT TO MAKE CAST IRON PIPE

St. John, N. B.—When tenders were called for cast iron pipe for the water and sewerage dept., Major R. A. McAvity appeared on behalf of T. McAvity & Sons, Ltd., and said that if his firm received the preference on cast iron pipe on a competitive basis they would fit up a plant at a cost of $30,000 to manufacture cast iron pipe in St. John. They also intended to install electric furnaces and were prepared to go ahead and make two sizes of pipe at first. If the undertaking proved satisfactory they would eventually erect a special plant employing from 150 to 200 men. If they received the present contract they were prepared to manufacture eight inch pipe right away. Price and quality being equal, all they wished was a preference.

The mayor said that the home manufacturers would certainly get the preference. He would pass the information on to the commissioner of water and sewerage and have him consider it.

STRESS NEED OF FILTER PLANT

Windsor, Ont.—Essex Border Utilities Commission will make another attempt to induce Windsor and Walkerville to become partners in a filtration plant to serve municipalities within jurisdiction of the commission. Officials of the commission will ask the Windsor Water Board and the Walkerville Water Company to discuss the plan at a joint conference to be held at an early date.

Thousands of dollars a year can be saved by using a filtration plant to serve five municipalities, it was asserted at a meeting of the commission. Each of the municipalities will have control of their distribution plants, it was stated. All the commission asks is that it be given charge of pumping the water from the filter beds, which will be built above Ford City, if an agreement is reached.

WESTERN ONTARIO NOTES

William Hurrell, Wyatt Ave., London, Ont., wants prices on hot air heating, plumbing and electrical work for new $4,000 residence.

The town council at Forest, Ont., will shortly take up the question of installing a new waterworks system, as a result of action taken by the business men who petitioned the Provincial Board.

Prices will be asked for shortly by the Board of the Christian Church at London, Ont., Rev. J. H. Versey, pastor, on heating, plumbing and electrical work in connection with new $50,000 church.

The council at Wiarton, Ont., will shortly consider extensive alterations and improvements in connection with waterworks including the installation of new electric pumps. Mayor McDonald chairman of committee.

The Methodist Congregation at Creditton, Ont., contemplates erection of a new church to cost $15,000 and will be interested in prices of heating.

M. Angus, 92 Dillabough St., London, Ont., wants prices on hot air heating, and plumbing for new $3,000 residence.

WATER SYSTEM

Windsor, Ont.—After acquainting new members with the history of negotiations looking to an improved water supply for the border muncipalities, the Essex Utilities Commission, will seek further conferences with Windsor Water Company. Last year Walkerville interests declined to co-operate.

A report from the Board of Health, recommending construction of a $600,000 municipal general hospital was referred to the commissions engineer for data as to the cost apportionately to various municipalities, both as to population and assessment.

Montreal Plumbers' Annual Curling Bonspiel

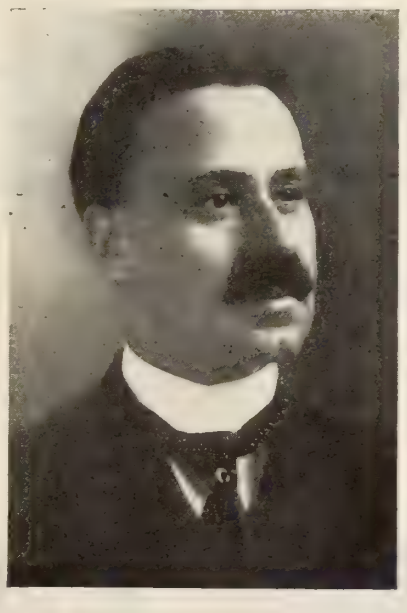
James Griffin's Rink Again Wins Good Mfg. Co. Trophy—Good Curling Marks the Annual Outing

MONTREAL.—The local fraternity of sanitary and heating engineers turned out en masse for the annual curling bonspiel on Friday afternoon, January 20. It was plumbers' day in earnest at the Caledonia Curling Club premises, and a good attendance of the city's master plumbers saw as fine curling as has been seen at the rink for some time. James Griffin, who won the Good Mfg., Co., trophy last year, skipped the winning rink again this season, but not until two hard fought games. In the opening match, Jas. Ballantyne drew against D. A. Bethune, while Jas. Griffin found himself up against the stalwart Jas. Buchan.

Ballantyne showed fine curling in his bout with Bethune, and both rinks had strong thirds in Martin, Quigley and Harry Munday. The leads were green, but very good, and the seconds hardly ever lost a stone.

The same can be said of the Buchan-Griffin match, with cracks like Jno. Watson and P. C. Ogilvie playing at third in support. Ogilvie was specially good and became really the determining factor in some of the pinches. The Bethune brothers were against each other at second, and both showed fine form. Geo. Delaney and H. Lavigueur at lead also showed class.

Griffin won the trophy after a ding-dong battle in the final with Jas. Ballantyne. The game was far closer than the score indicated, but Griffin came in strong at the finish, this said to be one of Mr. Griffin's "faults" in his favorite pastime.



E. G. BROUSSEAU

Master plumber of Quebec City and official of the Quebec Builders Exchange, who was elected chairman of the Trade Section at the annual convention of the Association of Canadian Building and Construction Industries in Hamilton, Ont

At the conclusion, prizes, donated by the Jas. Robertson Co., were presented by Jas. Ballantyne to the winners and runners-up. Jno. Watson, J. Corcoran and David Trotter also assisted in the pleasing ceremony of presentation, and after four hours of hard play, followed by light refreshments, the Plumbers' Bonspiel of 1922 became history. It is the second year's play started for the cup and it must be played for a third year, and then winners play off in single competition for possession. Following were the rinks;

Plumbers' Bonspiel—

Geo. Delaney	H. Lavigueur
J. M. Bethune	W. J. Bethune
Jno. Watson	P. C. Ogilvie
Jas. Buchan (Skip)—5	Jas. Griffin (Skip)—11
T. Latourelle	J. Belisle
W. U. Hughes	J. A. Gordon
M. J. Quigley	H. W. Munday
Jas. Ballantyne	D. A. Bethune
Jas. Griffin (Skip)—16	J. Ballantyne (Skip)—6

Final

SALESMANSHIP NOW BEING SUBJECTED TO THE ACID TEST

(Continued from Page 16)

Study, Learn and Teach.

Think.

Tell Your Griefs To The Man Who Can Help You.

Through The Eye

The purpose of these cards that I use at conventions, and further that I distribute around our factory and office is to educate the Organization through the eye, and at conventions you will find the salesmen copying them down in their note books, in other words, they are gathering ammunition that is going to help them at some time.

The Sales Manager who can select the proper men and train them properly will never have to look for a lucrative position. The position is looking for him.

CATALOGS AND BOOKLETS

The Williams Tool Corp., of Brantford, Ont., have produced a very cleverly written booklet called "Don't Let It Happen To You." This is attractively gotten up, and draws a parallel between the business man who decides to invest in a car and mar his pleasure in the purchase, for some time at least, by the failure to invest in suitable equipment fpr the same, and the manufacturer who after landing a large heating contract neglected the small item of purchasing a good set of dies for his machine.

SUPERIORITY PURITY
DURABLE AS THE PYRAMIDS

Encouraging Co

December 1921 shows the second larg

Construction contracts awarded during December totalled $19,118,500, according to MacLean Building Reports. In November they were but $16,639,800 and only $8,746,500 in December, 1920. The total figures for 1921 are $240,133,300, an apparent decrease of 6.05% from the $255,605,500 in 1920, but when recessions in material and labor costs are considered, the volume of con-

Port Hope Sanitary

Factories:
PORT HOPE, ONT.

Winnipeg Office:
405 TRIBUNE BLDG.

Head
1204 ROYAL BAN

SUPERIORITY PURITY DURABLE AS THE PYRAMIDS

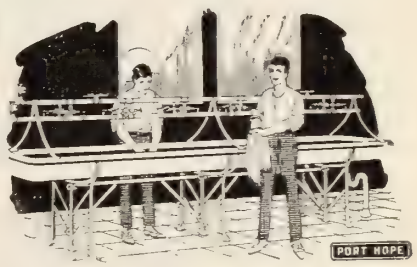
struction News!

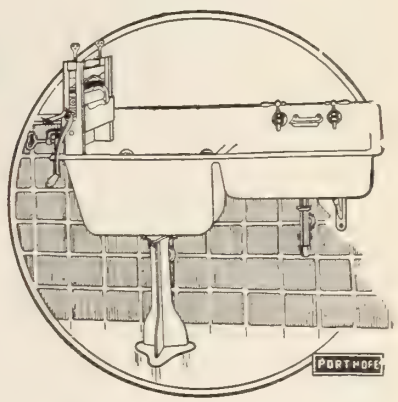
December total on record in Canada

struction in 1921 exceeded 1920 by many millions of dollars.

As to detailed figures: Hotels and Clubs lead, amounting to $2,274,500; residences, $2,024,000; office buildings, $1,445,000; factories, $1,356,200; apartments, $633,500.

This is a time for men of the plumbing industry to "go get it"—the business is there for those who go after it.





fg. Company, Limited

TORONTO

Vancouver Office:
325 HOWE ST.

Montreal Office:
604 SOUTHAM BLDG.

Another Test As To Retailers' Status

Classing of Certain Retailers as Manufacturers Continues Despite Previous Rulings—Another Test Case Instituted at Ottawa—To Get Definite Ruling on Tinsmiths

THE CASE which was instituted against the government by the Dominion Board, Retail Merchants' Association of Canada to determine as to whether retail confectioners could be classed as manufacturers, came before the Exchequer Court, Justice Audette presiding, on January 12. This case, which also has some bearing on the status of other retail merchants, including tinsmiths, was taken against William Karson, of Sparks street, Ottawa, and was defended by the Retail Merchants' Association, through their council, T. A. Beament, K.C.

E. M. Trowern, secretary of the Board, was present on behalf of the Association, and gave evidence to show that at no time could the provisions of the Act be interpreted as meaning that merchants selling direct to consumers, were liable for the payment of the three per cent. tax levied against manufacturers. Mr. Bodley, secretary of the Canadian Association of Confectioners, gave evidence for the Crown, which defended its case through Messrs. Hogg & Hogg, barristers, Ottawa.

This case has created considerable interest, owing to the fact that a similar case was fought out and judgment was rendered in favor of the retail merchants by the late County Judge R. D. Gunn, of Ottawa. An appeal was taken by the late government, but was eventually dropped, a new suit being instituted under the amended Act. When judgment has been rendered in this case, it is the intention of the Retail Merchants' Association to secure, through the courts, if necessary, a definite understanding as to the status of tinsmiths and merchants in other lines of trade. It has already been definitely ruled by the courts that merchant tailors, making clothing for sale direct to the consumers, are not liable for the tax, and in a general way this ruling was understood to include tinsmiths and others doing business in a similar manner, but time and again since the original ruling, officials of the department have seen fit to place interpretations both upon the Act and the court ruling which have been anything but satisfactory to the retail trade.

This particular case, it was pointed out by Mr. Trowern in his evidence, was not a matter of whether small retail confectioners should pay a tax because large confectioners were paying it, but rather a case where the law clearly stated that only wholesalers and manufacturers who make up goods for sale to retailers, are called upon to pay the tax provided by the Act. "We are endeavoring to see that the government lives up to the provisions of its acts, irrespective of whether they are logical or not," said Mr. Trowern. "The tax was never intended to be collected by retail merchants and we object to having them placed under the provisions of the Act."

FILTERED WATER BASIN FOR CHATHAM

Chatham, Ont.—At the last meeting of the Board of Health this year, Dr. T. L. McRitchie, M. O. H., read his annual report in which he gave a resume of the general health of the city.

The report makes mention of the city's water supply, and the M. O. H. recommends that a chlorine water basin be installed to take the place of the chlorine injector. It states the water provided the citizens during the year has been good with the exception of two short periods, when a few samples showed some contamination. This was always at a time when the chlorine injector was out of commission, so that some water entered the city mains without chlorination. This could be easily overcome should the Water Commissioners take the necessary steps to provide a proper filtered water basin where all water, before entering the city mains, would be chlorinated without having to use a high pressure pump to inject the chlorine. This obviates the danger of the pump being out of use through need of repair.

Three new filters were installed early in the year, making eight in all, with a normal capacity of 2,100,000 gallons, while the amount used in the same time varies from 1,500,000 to 1,800,000 gallons. This surplus water, in the event of the installation of a chlorine basin, would provide for the easing off of capacity pumpage. The chlorine would also have 40 minutes to one hour before entering the city mains instead of receiving the chlorine as the water enters the city mains as it does at the present time. Chlorine is used in the water the whole year round, but less chlorine is used in the winter than in summer.

CO-OPERATIVE PUBLICITY AMONG PLUMBERS

(Continued from Page 11)

appropriation based upon the volume of his business.

Thus, in a number of cases in large cities, the "upstairs" stores in numerous lines of business have joined together and produced page advertisements to emphasize for public attention the fact that their upstairs locations enable them to offer better prices on merchandise, because of lower rental expenses, etc.

The electrical contractors and dealers in many localities have also combined in the effective production of large space advertisements in the newpapers.

The list of activities of this sort could be prolonged considerably. But what's the use? A fact is a fact. You can dodge a fact only just so long, but no matter how cleverly you dodge, eventually the fact will hit you in the head.

It is a fact that the public sadly needs education on the matter of modern sanitary equipment. It is a fact that the Plumbing and Heating Dealer is the last point of contact in the trade with the buying public. It is a fact that the Plumbing and Heating Dealer's responsibility to himself and to the public is that he should let the buying public know where he is to be found, and what he can supply. It is a fact that group advertising supplies the P. and H. Dealer with the means of satisfying these conditions at an expense which he can afford. It is a fact that in large cities exist the widest possible opportunities to turn the foregoing facts to profitable use.

The matter of distributing the expense for campaigns of this character is one that is easy enough of solution. Each contractor in a group will surely know what his gross volume of business is. Let each one be assessed a definite, equal percentage of his volume of business. Let the advertisements be signed with the name of the local association or group, followed by the individual signatures of the firms co-operating to produce the advertisements.

In order that there may be no advantage to any one firm in the matter of the position of their name in the signature of the advertisements, let the original order of these names in the first advertisement be determined by lot. Thereafter, in the case of every advertisement, let the names of the firms be rotated in position, the top one each time becoming the bottom one in the next appearance of the advertisement.

WINDSOR OBJECTS TO PLUMBING INSPECTOR EXAMINING JOURNEYMAN

Windsor, Ont.—The Plumbing By-law came up for a final reading this week, but council adjourned before finally completing the reading. The by-law will in all likelihood be finally passed upon in a few days. Some discussion took place as to an added clause stipulating that all journeymen plumbers commencing work in the city should pass an examining board consisting of the plumbing inspector and several others to be selected from the master plumbers. Mayor H. W. Wilson objected to this clause, on the ground that a board would mean further expense to the city, and that the city plumbing inspector was capable of examining the plumbers satisfactorily. After considerable discussion, Mayor Wilson submitted an amendment to the clause stipulating that the plumbing inspector alone conduct the examination. The amendment was defeated.

A scale of fees, the maximum of which is $1, was fixed for the issuance of permits under the Plumbing By-law.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

MARKETS AT A GLANCE

MANY products of direct interest to the heating and sanitary industry now register price reductions. Pipe fittings, valves, and the steel markets supply the feature revisions. New discounts have been announced on standard globe, angle and check valves, with other makes of compression goods recording a similar change. Practically all kinds of cast iron pipe fittings are easier in price through revised discount levels, while malleable fittings, in both galvanized and black, are also reduced. An easier trend is noted in certain sheet centres with slight recessions on English galvanized, Welsh Canada plate, tin and terne plates. Reductions are announced in some quarters on practically all grades of bar iron and steel, while quotations on these products are sagging in general. Through changing the discounts, other price reductions appear on metal ceilings and walls; while easier levels are recorded on Stillson wrenches in the Canadian pattern, and also agricultural and knife-handled wrenches of various makes.

Activity in boiler tubes has somewhat improved, but business in piping is described as decidedly moderate. Quietness prevails in scrap materials, with an easier tone in ingot metal circles. The cotton waste markets reflect the quietness in raw cotton, without any further change in the domestic situation. Trade in radiators and boilers is stated to be fairly satisfactory for this season of the year. Enamelled ware is quiet, and the volume of orders for closet combinations and fixtures is small, the cold weather restricting building operations where these products are utilized. This condition applies to corrugated sheets, eavestrough, and conductor pipe. The quiet session is still evident in both soil pipe and range boilers, with the current dull period resulting in price shading on certain products. Trade anticipations in general point toward improvement during the Spring and Summer seasons, while any increase in the volume of construction activity should be more or less directly reflected by general conditions in the sanitary and heating industry.

MONTREAL MARKETS

MONTREAL, January 30.—Another extensive list of price developments is reported on the current markets, reductions in prices covering many important lines of plumbing and steamfitting supplies. Bar iron and steel in all grades is reduced approximately 25 cents per 100 lbs., and common bar iron will now sell for $2.65 per 100 lbs. Standard and Emco line of globe, angle and check valves are reduced through a revision in discounts, and corrugated sheets are now quoted at less 10 per cent., former discount being 7½ per cent. Pipe fittings record an outstanding revision when practically all kinds show a reduction of varying extent. Cast iron fittings are now less 30 per cent., while other lines are from 5 to 10 per cent. lower with the exception of class A pound goods, these being advanced one cent per pound. A price decline is recorded in eavestrough and conductor pipe, also in metal ceilings and walls. An easier tendency has again crept into the sheet markets and English galvanized sheets, Welsh Canada plate, tin plate and terne plates are now quoted lower. Ingot metals are also easier in tone, and some are shown at a reduction in price. Tools also feature when Canadian Stillson, agricultural, Coe's and W. & B. knife handled wrenches are now lower in price.

Business is seasonably quiet in many lines, although present building operations are assisting in the movement of radiators, boilers and enamelled ware to an extent. With the month of January now closed, however, a gradual improvement in business in general is looked for.

REVISED DISCOUNTS ON SOME LINES OF VALVES

Montreal.

Standard globe, angle and check valves are reduced approximately 6 per cent., while the Emco line of globe and check valves show a more substantial reduction with discounts revised from 20 per cent. to 33 per cent. off list prices. The standard valves will now sell at less 25 per cent. Other lines of compression goods are unchanged for the present, with business said to be of a spasmodic nature, although generally showing a slight improvement since the close of inventory period. Following are present discounts;

COMPRESSION WORK—	
Compression work, standard	43%
Fuller work, standard	30%
Bath cocks, compression	30%
Basin cocks, Fuller No. 0	30%
Do., Nos. 1 and 2	30%
Flatway stop and waste cocks, standard	54%
Roundway stop and waste cocks, std.	46%
Brass steam cocks, standard	40%
Radiator valves, standard	58%
Do., removable disc	58%
Globe, angle and check valves, std.	25%
Gate or straightway	16/10%
Emco Globe Valves	33%
Emco check valves	33%
Jenkins Globe, angle, check and swing check	19%
Jenkins gate or straight way	25%
Jenkins iron body, globe and angle	15%
Jenkins iron body gate	33%

REDUCTION NOW MADE ON BAR IRON AND STEEL PRICES

Montreal.

Reduced prices are announced on all grades of bar iron and steel, and common bar iron will now sell for $2.65, a reduction of 25 cents per hundred pounds. Other lines show a proportionate decline with the exception of the higher grades of steel, such as mining tool steel and Black Diamond tool and cast steel, these being reduced ½ cent per pound. Although former prices were considered reasonably low, and many thought the next revision would be in the nature of an advance, the trend of the market is undoubtedly still downward, due for the most part, according to local dealers, to the dull period at present apparent. One large local distributor stated that competition played no small part in the present reductions. While business in these lines is at present seasonably quiet, there is

every reason to believe that an improvement is in sight and in the hope of securing the earlier trade some houses offered the lower figures which were soon followed by the remainder. Following are revised quotations,

IRON & STEEL—

Common bar iron, 100 lbs.	2 65
Refined iron	4 15
Iron finished machinery steel	2 70
Mild steel	2 65
Single reeled machinery steel	4 75
Band steel	2 65
Spring steel	4 25
Sleighshoe steel	2 65
Tire steel	2 85
Toe calk steel	3 55
Harrow tooth steel	2 80
Mining tooth steel, per lb.	0 21½
Black Diamond tool and cast steel	0 21½

NOTE—Refined iron is approximately $1.50 per 100 lbs. over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs. extra.

EASIER PRICES RECORDED ON STILLSON WRENCHES

Montreal.

Slightly easier quotations are given on the various sizes of the Canadian pattern Stillson wrenches, the discount being revised from 50 per cent., to 52½ per cent. off list prices.

AGRICULTURAL WRENCHES NOW LOWER IN PRICE

Montreal.

A reduction is made on agricultural wrenches, these now being quoted at less 52½ per cent. Coe's and W. & B. knife handled are also lower, the former now selling at less 40 per cent., the latter less 45 per cent.

EASIER TREND AGAIN NOTED IN SHEET MARKETS

Montreal.

Reductions of varying extent are recorded in the general sheet markets, and English galvanized, Welsh Canada plate, terne plate and tin plate each have lower prices. English standard galvanized sheets are reduced 50 cents on all gauges in both Queen's Head and Fleur-de-Lis. Bright tin plates in full boxes, $1.10 per box lower, while the 56 sheet boxes show a decline of 50 cents per box. Terne plates will now sell for $16.50 a box, former price being $17.50 Welsh Canada plates are 25 cents lower in both 52s and 60s.

Black sheets and American galvanized sheets remain unchanged, prices on these now considered at a very low level in comparison with replacement costs. The reduction on other lines now recorded are said to be entirely due to local distributors, as no change in particular has developed in the English market recently. Business locally continues rather dull, although slightly improved over the quiet weeks at the close of last year. Dealers are still convinced that sales will gradually increase as the weeks pass, and it is hoped that a much steadier market will prevail locally than has been the case in the past twelve months.

Following are revised quotations;

BLACK SHEETS—

10 gauge	4 00	4 50
12 gauge	4 10	4 60
14 gauge	4 40	4 70
16 gauge	4 50	4 80
18-20 gauge	4 55	5 05
26-gauge	4 60	5 20
22-24 gauge	4 65	5 25
28 gauge	6 35	7 20

GALVANIZED SHEETS—

10¾ ounce	6 75	7 60
28 gauge	6 30	7 20
26 gauge	6 05	6 85
22-24 gauge	5 90	6 60
20 gauge	5 75	6 45
18 gauge	5 75	6 35
16 gauge	5 60	6 35
14 gauge	5 45	6 35
12 gauge	5 30	6 35
10 gauge	5 20	6 35

English Standard—	Queen's Head.	Fleur-de-lis
28 gauge	7 75	7 25
26 gauge	7 50	7 00
24 gauge	6 90	6 60
22 gauge	6 65	6 15
18-20 gauge	5 85	6 00

NOTE—These prices are for full bundles; an extra charge of 25c to 35c per 100 lbs. is made for broken lots. Extra for sheets 4 ft. wide, 50 cents per 100 pounds. Extra for sheets 3 ft. wide, 28 ga. and 10¾ oz. 25 cents per 100 lbs.

CANADA PLATES—

Dull.

18 x 24 x 52s	5 60
18 x 24 x 60s	5 80
18 x 24 x 75s	6 10

WELSH CANADA PLATES—

Polished.

18 x 24 x 52s	8 00
18 x 24 x 60s	8 25

BRIGHT TIN PLATES

20 x 28 x 100 lbs., bases	16 50
20 x 28 IC., 112s	17 00
20 x 28 IX., 112s	19 00
20 x 28 IXX., 50s	10 75
20 x 28 IXXX., 56s	11 50

TERNE PLATES

20 x 28 IC, 112s	17 50

LOWER PRICES ARE ANNOUNCED ON METAL CEILINGS AND WALLS

Montreal.

Metal ceilings and walls, for inside work, are slightly reduced through the change in discount from 10 per cent. to 12½ per cent. off list prices.

EAVESTROUGH AND PIPE DISCOUNTS SHOW REVISION

Montreal.

Revised discounts are now quoted on both eavestrough and conductor pipe, while elbows and sundry lines remain unchanged in price. Square bead, round and half round troughs are now quoted less 70-10 per cent, a reduction of approximately 10 per cent. The same reduction is recorded on round conductor pipe, both plain and corrugated, while plain and corrugated square and octagon prices are now quoted less 70 per cent on their higher list prices. Following are list prices and discounts.

EAVESTROUGH—

O.G. Round and Half-round, per 100 ft., 8 in., $16.90; 10 in., $18.70; 12 in., $22.20; 15 in., $29.80; 18 in., $37.80.

O.G. Square bead, per 100 ft.: 8 in., $15.90; 10 in., $17.70; 12 in., $21.20; 15 in., $28.80; 6 in., $36.80.

Discount 70|10 per cent.

Conductor Pipe, Round, Plain and Corrugated, per 100 ft.: 2 in., $18.40; 3 in., $23.30; 4 in., $29.60; 5 in., $40.00; 6 in., $49.00.

Discount 70|10 per cent.

CONDUCTOR ELBOWS—

Plain or corrugated, price per doz.

2 in., $5.25; 3 in., $6.00; 4 in., $10.50; 5 in., $24.00; 6 in., $29.00.

Discount 60 per cent.

CORRUGATED SHEETS NOW LOWER IN PRICE

Montreal.

The easier tendency in corrugated sheets for some time past, owing to the softer tone in the flat galvanized sheet market, has resulted in slightly lower quotations. The discount is now revised from 7½ per cent. to 10 per cent. off list prices, with list prices remaining as formerly. Little improvement is yet shown in the movement of these sheets, the season still considered early for any active sales to commerce. Follow- are unchanged list prices with revised discounts;

CORRUGATED SHEETS—	Per 100 sq. ft.
No. 28 gauge	6 50
No. 26 gauge	7 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50

Less 10 per cent.

Lighter than 24 gauge and wider than 27 inches, 75c a square extra.

PIPE FITTINGS HAVE REVISED QUOTATIONS

Montreal

Through a revision in discounts, practically all kinds of pipe fittings are reduced in price. Cast iron fittings are now quoted at less 30 per cent., formerly being less 25 per cent. On other cast and malleable fittings the reduction varies from approximately 5 to 10 per cent. Class A in pound goods is the only line showing an advance in price quotations now being one cent per pound higher. Class B and C are both slightly reduced. Following are revised prices and discounts;

PIPE FITTINGS—	Per Cent.
Cast iron fittings	30
Bushings, cast	32
Bushings, malleable	32
Flanges	40
Plugs	30
Flange unions	30
Malleable unions	47
Dart unions, black	33
Do., galvanized	13
Nipples, ⅛ to 4" close and short	50
Do., long	60
Do. 4½ to 8" close and short	40
Do., long	50
Couplings, 4" and under	30
Do., 4½" and larger	10

Pound Goods —	Blk.	Galv.
Class A	0 54	0 67
Class B	0 20	0 28
Class C	0 13	0 20

SAP BUCKET PRICES NOW ARE ANNOUNCED

Montreal

The new season's prices are now announced on sap buckets, spouts and syrup cans. These are much lower than the opening quotations of last year, and jobbing houses are convinced that the reduced prices will assist towards a good season in these lines. It is yet early in the season for these supplies, but buying is expected to commence in the following weeks. New quotations are as follows;

SAP BUCKETS—

Straight pattern, per 100:—No. 7, $13.80; No. 8, $15.00; No. 9, $16.80; No. 12, $18.00; No. 16, $21.60.

Galvanized straight:—No. 9, $23.00; No. 12, $27.00; No. 16, $31.00.

Western, (flaring) pattern:—6 qt., $13.50; 10 qt., $18.00.

Frontenac:—10 qt., $19.00.

Galvanized western:—10 qt., $27.00.

Spouts:—Sterling, $20.00; Eureka, $15.00 per 1000

Square 1-gal. syrup cans, $16.75 per 100.

BOILER TUBE SALES ARE SOMEWHAT IMPROVED

Montreal

In the past two weeks a noticeable improvement has been felt in the movement of boiler tubes. This is termed as only seasonable as boilers are now undergoing repairs before the open weather of spring. Distributors look for a continued improvement in the weeks following. Quotations are remaining unchanged for the present as follows;

BOILER TUBES—	Seamless	Lapweld
1 inch	24 70	.....
1¼ inch	24 50	.....
1½ inch	24 00	.....
1¾ inch	26 00	26 00
2 inch	24 50	20 50
2¼ inch	27 75	23 50
2½ inch	32 50	24 50
3 inch	40 00	30 50
3½ inch	52 50	34 75
4 inch	65 00	44 00

QUIETNESS PREVAILS IN SCRAP MARKETS

Montreal

Quietness still prevails in the waste material market, ferrous scrap being particularly dull. There are a few small deals going through in nonferrous metals, but here also the business is of a spasmodic nature. Consumers are apparently not interested at all, regardless of the extreme low prices quoted by dealers in the hope of obtaining business. Dealers state that little improvement may now be expected until the earlier spring months when the weather opens. Following are local nominal prices.

SCRAP—	
Automobile tires	0 75
Rubber Shoes	0 03
Yellow brass	0 05
Red brass	0 09
Light brass	0 03¼
Scrap zinc	0 03 0 03¼
Lead, heavy	0 04¼
Lead, tea	0 02½
Light copper	0 08
Heavy copper	0 10½
Wrought iron, R.Rd., No. 1 per gr. ton	10 50
Malleable scrap (ton)	8 00
Pipe scrap (ton)	6 50
Heavy melting steel	7 50 to 8 00
No. 2 busheling	4 00
Boiler plate	8 00
No. 1 machinery cast	21 50

ANOTHER REVISION IN WASTES THOUGHT LIKELY

Montreal.

It is quite apparent that still another revision in cotton waste prices is not unlikely. Dealers state that while there is no present announcement forthcoming, the cotton market is such that prices could again be revised and still be in line with conditions in raw material circles. It will be remembered that a slight change was made in quotations only two weeks ago. Following are present prices;

COTTON WASTE—Cream polishing, 19c per lb. White—XXX extra, 16c; XX grand, 15½c; XLCR, 14½c; X Empire, 13c; X Press, 11½c. Colored—Fancy, 13½c; Lion, 12c; Popular, 9c; Keen, 7½c.

Wool Packing—Arrow, 25c; Axle, 22c; Anvil, 18c.

Dominion Wipers—White cotton, 20c; colored cotton, 14c.

NO CHANGE REPORTED IN WROUGHT PIPE

Montreal.

Wrought iron and steel pipe still sells under list No. 54, no change being recorded since the revision in December last. A fair amount of business is now recorded, sales showing a slight increase since the inventory period, dealers no doubt placing small orders sorting up their stock. Following is list No. 54.

WROUGHT PIPE

Price List No. 54. December 22, 1921.

Standard Buttweld Pipe S/C

Size	Steel Blk.	Steel Galv.	Gen. Wrot. Iron Blk.	Gen. Wrot. Iron Galv.
⅛ in.	$6 00	$ 8 00	$	$ ....
¼ in.	3 84	5 94	7 20	9 30
⅜ in.	3 84	5 94	7 20	9 30
½ in.	4 85	6 46	7 31	8 93
¾ in.	5 87	7 71	8 86	10 70
1 in.	8 16	11 05	12 58	15 30
1¼ in.	11 04	14 95	17 02	20 70
1½ in.	13 20	17 88	20 35	24 75
2 in.	17 76	24 05	27 38	33 30
2½ in.	28 08	38 03	.....	.....
3 in.	36 72	49 73	.....	.....
3½ in.	47 84	63 48	.....	.....
4 in.	56 68	75 21	.....	.....

Standard Lapweld Pipe S/C

Per 100 feet.

Size.	Steel Blk.	Steel Galv.	Gen. Wrot. Iron Blk.	Gen. Wrot. Iron Galv.
2 in.	$21 46	$27,38	$31,08	$37 00
2½ in.	31.50	40 05	46 80	56 16
3 in.	41 31	53 55	61 20	73 44
3½ in.	48 76	65 32	72 68	89 24
4 in.	57 77	77 39	86 11	105 73
4½ in.	66 04	86 36	1 04	1 24
5 in.	76 96	100 64	1 21	1 45
6 in.	1 00	1 31	1 57	1 88
7 in.	1 33	1 76	2 02	2 45
8L in.	1 40	1 85	2 13	2 58
8 in.	1 61	2 13	2 45	2 97
9 in.	1 97	2 59	2 97	3 59
10L in.	1 82	2 40	2 75	3 33
10 in.	2 35	3 09	3 54	4 28

RADIATION AND BOILERS NOW SELLING FAIRLY WELL

Montreal.

The opening month of the year is bringing satisfactory returns insofar as sales of radiators and boilers are concerned. Dealers state that business is fairly brisk, and if the volume of trade is maintained, sales will be in advance of last year, and above expectations. The reason outlined is that building operations are now being carried on in practically every month in the year, and last Fall a good amount of new building was commenced. These buildings have now reached the stage where heating systems are required. A continued improvement is now looked for by those dealing in these lines. Quotations remain unchanged since the revision a few weeks ago.

Radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

45 in. to 38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60. Discount, 59% for hot water and 60% for steam.

Wall Radiators—5 ft., $1.15; 6 ft., $1.10; 7 ft., $1.05; 9 ft., $1.05; 12 ft., $1.05. Discount 56%.

Boilers.—Round hot water boilers, low base only (high base discontinued) sizes from 0 to 10, 64 per cent. off list.

Square or sectional hot water or steam boilers, 15-in., 20 per cent.

For Ontario Government trimmings add 5 per cent.

Square or sectional water boilers, 19-in to 36-in. 20 per cent. off list.

Square or sectional steam boilers, 19-in. to 36-in., 20 per cent. Ontario Govt. trimmings, 10 per cent.

Round steam boilers, standard trimmings, 28 per cent. off. Ontario Government trimmings, 25 per cent.

All prices f.o.b. Toronto, Montreal, Guelph, Hamilton, St. Catharines or Brantford.

LITTLE BUSINESS IS REPORTED IN SOIL PIPE

Montreal.

Orders in soil pipe are admittedly not very numerous at present, the cold weather not allowing work to be carried on very extensively. Quotations on both pipe and fittings remain unchanged, and although it is generally conceded that competition is now holding prices at their present levels, there seems no indication of a revision in an upward direction. Following are unchanged discounts;

SOIL PIPE—	
2 and 3 inch	47½%
4 inch	50%
5 and 6 inch	47½%
Fittings—	
2 to 6 inch	50-10%
Do., broken lots	0 12

ONLY FAIR BUSINESS IN ENAMELLED WARE

Montreal

Only a limited amount of business is now reported in the various lines of enamelled ware. There is a fair amount of new building under construction, and this is demanding supplies, but sales to the outside territories are seasonably quiet. Quotations on all lines are holding unchanged as follows;

Sinks, roll rim—			
18 x 30			$23 00
Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$ 7 50	$ 7 40	$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide			51 40
Bath tubs, 5½ feet			67 10
Lavatories—			
17x19 in. Apron F139 or P4045			15 30
18x24 in. Apron F154 or P3845 or P3847			23 60
18x21 in. Apron F169 or P4205			17 60
17x19 in. Roll rim, F241 or P4345			12 60

Less 33 1-3 per cent.

PRACTICALLY NO CHANGE IN RANGE BOILERS

Montreal

The standard list on range boilers still remains unchanged, with the 30 gallon boiler nominally quoted at $8.75. There was an effort put forth by different dealers last week to stabilize the present unsettled condition in the selling of these products, but up to the present nothing definite has been accomplished. Although some are of the opinion that a higher list of quotations will make its appearance it remains in doubt whether this will have the desired effect on the local market. Following are present quotations;

RANGE BOILERS—	Std.	Ex. Heavy
30 gallon	8 75	11 25
35 gallon	11 25	13 50
40 gallon	13 50	16 00
52 gallon	20 00	24 50
66 gallon	28 00	34 00
82 gallon	35 00	46 50
100 gallon	45 00	55 00
120 gallon	54 00	63 25

EASIER UNDERTONE NOTED IN LEAD PRODUCTS

While quotations on lead products in general are remaining unchanged an easier undertone has again crept into the market. Metals on primary mar-

kets are without exception recorded with a softer tone, with lower quotations now appearing on some lines. Solder quotations are said to be steadier than other products, but with the easier undertone continuing lower prices in some quarters would not be surprising. Trade is described as fair for this season of the year, orders however continuing of a small nature. Following are unchanged quotations;

Lead pipe, per 100 lbs.	12 50
Lead waste, per 100 lbs.	13 50
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	10% off
Lead wool, lb.	0 13½
Lead sheets, 2½ lbs.	0 10½
Lead sheets, 3 to 3½ lbs., sq.	
Do., 4 to 8 lbs., sq. ft.	0 09½
ft., lb.	0 10¼
Cut sheets ¼c lb. extra and cut sheets to size, ¾c lb. extra.	
Solder, guaranteed, lb.	0 28½
Do., strictly, lb.	0 26½
Do., commercial, lb.	0 23½
Do., wiping, lb.	0 24½
Do., wire, lb.	0 32½
Zinc, sheets, casks	0 11½

CLOSET COMBINATIONS REMAIN UNCHANGED IN PRICE

Montreal

As in other lines of enameled ware, closet outfits are seasonably quiet on the market at present. While a fair amount of new building is now requiring supplies, orders from other sources are by no means numerous. Quotations locally are remaining unchanged, notwithstanding slightly revised prices are quoted in other western markets. Present quotations are as follows;

CLOSET OUTFITS—	
Closet, standard outfit	27 50
Do., with post hinge seat	28 50
Do., white vitro, vitreous china or enameled iron, with wash-down bowl and oak or mahogany post hinge seat	30 50
Do., reversible trap bowl, less spud	12 75
Do., add for siphon jet bowl	7 00
Do., for ⅜ in. valve on supply pipe	1 50
Do., deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	10 50
Do., reversible trap bowl, less spud	11 50
Do., siphon jet bowl, less spud	19 00
Do., Richelieu" bowl	9 00
Do., extra for spud	0 60
Do., oak, or oak-vitro tank, with fittings, less seat	14 25
Do., wood strip seat and cover	3 55
Do., post hinge seat and cover	4 25
Do., add for bar hinge	No extra
Do., white vitro, vitreous china, or enameled iron tank, with fittings, flush elbow and supplies less seat	18 50
Do., Vitrious China	20 00

METAL MARKETS ON THE DOWNWARD TREND

Montreal

The trend of the metal markets has been downward in all lines and the London market is especially weak. The cause of the decline is not distinctly apparent unless it is the unsettled condition in Europe, but the tone of the market is disappointing.

TIN.—The London market continues to drop and is now down £16 a ton from the highest point reached last month. Stocks are undoubtedly large while the price is now very low. Local market is easier at 36½ cents.

COPPER.—This metal is lower, both in London and New York. The outlook is uncertain, but to-day's figures are certainly reasonable. Consumption is below normal but should gradually increase. Local prices are easier at 17½ cents for electro, 17¼ cents for casting.

LEAD.—This is the steadiest metal on view, and prices show little change in any markets. Supply and demand are fairly well balanced and the outlook is fairly good for this metal. Quotations unchanged at 7 cents.

SPELTER.—Both London and East St. Louis continue to decline, and there seems litle backbone to the market. It would not, however, take much buying to again stiffen prices. Local quotation remains at 7½ cents.

ANTIMONY.—Although antimony is very quiet, and the trend of the metal markets in general is downward, quotations are unchanged up to the present at 6¾ cents for Chinese, 7¾ cents for high grade English.

ALUMINUM.—Quotations on this metal are also unchanged at 26 cents, with the market dull and featureless.

TORONTO MARKETS

TORONTO, January 30.—Numerous price reductions continue to supply the premier feature of the current sanitary and heating industry market reports. Practically all kinds of cast iron pipe fittings are reduced through revised discounts, while malleable fittings, both black and galvanized, record similar price reductions. New discounts are noted on many lines of compression goods, particularly the standard globe, angle and check valves, with a corresponding change on various makes of these products. Price declines also appear on metal ceilings; while quotations are sagging on bar iron and steel. An easier price base is also announced in some quarters on brass rods. A reduction is recorded on agricultural wrenches.

Lead materials at present await the basic market trends, while fair trade has been recorded in boiler tubes. An improvement is foreshadowed in the volume of sheet business, with quietness being the current feature in soil pipe centres. The dull season now prevails in enamelled ware products, with the current degree of construction activity being reflected in radiators and boilers. It is anticipated that Spring business will improve the sales of closet combinations and fixtures; while trade in piping is decidedly moderate. The present quietness has resulted in price shading on range boilers. The scrap material markets show very little variation, while a quieter tone is noted in ingot metal circles.

REDUCTION RECORDED ON AGRICULTURAL WRENCHES

Toronto.

Through a revision in the discount, quotations on Agricultural wrenches are again on an easier level. The new discount is 50 and 5 per cent. off, compared with the previous quotation of 50 per cent.

PRICE DECLINE APPEARS ON METAL CEILINGS

Toronto.

Following the reductions recently recorded on conductor pipe, eavestrough, and corrugated sheets, manufacturers of galvanized products have announced a similar recession in quotations on metal ceilings and walls for inside work. The discount is revised from 10 per cent., to 12½ per cent. off list prices.

REVISED DISCOUNTS APPEAR ON COMPRESSION GOODS

Toronto.

Through a revision in the discounts, varying reductions are announced on certain lines of compression goods. These changes principally affect globe, angle and check valves. The discount on standard, has been revised from 20 to 25 per cent, and a number of similar quotations have also been announced, the extent of the decline being greater on some other valves. Following is the new list of quotations on these products:

VALVES—	Per cent.
Compression work, standard	43
Fuller work, standard	30
Bath cocks, compression	32
Do., Fuller	25
Flatway stop and wastecocks, stand'd	54
Roundway stop and waste cocks, std.	46
Brass steam cocks, standard	40
Globe, angle and check valves, std.	25
Mueller globe, angle and check	25
Mueller composition disc steam valves	33
J. M. T. valves, screwed	20|10
J. M. T. C., screwed	25|10
J. M. T. gate valves, screwed	25|10
Jenkins gate or straightway, screwed	25|10
Jenkins globe, screwed	19|10
Radiator valves, standard	58
Do., removable disc	58
Emco, J. D., rad. valves, screwed	33
Emco std. check valves, screwed	25
Emco swing check, ⅜" and ½"	40
Do., Do., other sizes	33
Webber gate valves, screwed	30
Emco globe valves, std., screwed	25
Emco globe valves, J. D., screwed	33
Basin cocks—	
No. 0 and 1, Fuller pattern	30
Quick opening No. 3633	43

REDUCTIONS IN MALLEABLE AND CAST FITTTINGS

Toronto.

A decline of approximately 10 per

(Continued on page 30)

MUELLER

Compression Stop Cocks

Beauty of design—freedom from sharp angles and creases—and the ease with which they can be kept clean—make MUELLER Compression Stop Cocks especially desirable for residence plumbing.

The well-known MUELLER quality of materials and workmanship insures that dependable service which builds reputation for the wise plumber.

Each MUELLER Cock is tested to withstand 200 pounds hydraulic pressure—and is fully warranted.

The four Cocks here shown are a few of the many MUELLER patterns—all designed to meet specific requirements.

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Mueller Metals Co., Port Huron, Mich., Makers of "Red Tip" Brass Rod; Brass and Copper Tubing; Forgings and Castings in Brass, Bronze and Aluminum; Die Castings in White Metal and Aluminum; also Screw Machined Products.

TORONTO MARKETS

(Continued from page 28)

cent. has been announced in the quotations on malleable and cast iron fittings, plugs and unions. This change revises the discount on cast fittings, and also the prices on pound goods, both black and galvanized. The new lists are expected to place the market on these products at a basis for Spring business anticipations. Following are the latest revisions:

PIPE FITTINGS—	Per cent.
Cast iron fittings	30
Plugs, cast iron	30
Oo., solid	30
Do., countersink	30
Bushings, malle.	32
Do., cast	32
Unions, ¼ in. to 2 in.	47
Do., 8 in., 2¼ to 4 in.	47
Flanged unions, std.	30
Flanged fittings	30
Dart unions, blk., ¼ to 2 in.	33½
Do., ⅛ in., 2¼ to 4 in.	23
Do., galvd., add to black	30
Nipples, blk., and galvd. ⅛ to 4 in. close and short	50
Do., 4½ in. and larger	40
Do., long, ⅛ in. to 4 in.	60
Do., 4½ in. and larger	50
Do., running thread	30
Couplings, 4 in. and under	30
Do., 4½ in. and larger	10

MALLEABLE FITTINGS—		
ClassA	0 54	0 67
Class B	0 20	0 28
Class C	0 13	0 20

LEAD MATERIALS AWAIT BASIC MARKET TRENDS

Toronto

No further change has been made in quotations of the various lines of lead products since the repeated advances in solder quotations a few weeks ago. If the marked strength had continued in metals on primary centres, changes would no doubt have developed in other lines besides solders, but a slightly easier trend is now reported in ingot circles, although dealers state not to the extent as to cause any immediate lower prices in the finished products. For the present the market on a whole is fairly steady apparently awaiting developments in basic materials. The market is seasonably dull, but witr the turn of the year, more activity is looked for in following weeks. Prevailing quotations are as follows:

LEAD AND ZINC GOODS—	
Lead, pipe, list, per lb.	0 12½
Lead, waste pipe, list, per lb.	0 13½
Do., over 8 in., list, per lb.	0 14½
Lead pipe is subject to a discount of 10 per cent.	
Lead traps and bends,	10 per cent.
Lead sheets, 4 to 6 lbs., sq. ft. in rolls, lb	0 09½
Cut sheets, ½c to ¾c lb. extra and cut sheets to size, 1c lb. extra.	
Solder wire, per lb.	0 32½
Do., commercial, lb.	0 22½
Do., strictly, lb.	0 24½
Do., guaranteed, lb.	0 27½
Do., wiping, lb.	0 22½
Zinc sheets, per lb.	0 12

IMPROVEMENT FORESHADOWED IN SHEET MARKETS

Toronto

Orders for sheets and plates are said to be of a moderate nature, but in fair proportion for this season. Steel companies generally report more anticipations for a higher rate of output during the next few months than of an upward trend to prices. Prevailing quotations are nominally unchanged, but it is recognized that any large-sized order might result in slight concessions.

Tin plate mills are still reported running at a high rate of production. The recent appearance in certain markets of some larger projects, points to a more general recognition of the present degree of liquidation in the steel industry, and in also construed as foreshadowing an increased volume of construction work with the approach of the open season. Nominal prices remain as follows:

BLUE ANNEALED—		
10 gauge, base	3 75	4 50
12 gauge	3 80	4 55
14 gauge	3 85	4 60
16 gauge	3 90	4 65
BLACK—		
18-20 gauge	4 30	5 05
22-24 gauge	4 35	5 10
26 gauge	4 40	5 15
28 gauge	4 50	5 25

Charge of 25c. per 100 lbs., is made for less than case lots. An extra 10c per 100 lbs. is also charged on sheets 26 in. wide.

GALVANIZED—	Queen's Head.	Fleur-de-lis.
28 gauge	8 25	7 75
26 gauge	8 00	7 50
24 gauge	7 60	7 10
22 gauge	7 15	6 65
18 and 20 gauge	7 00	6 50
Premier and Apollo—		
10¾ oz.	6 25	7 00
U. S. 28, base	5 85	6 60
U. S. 26	5 55	6 30
22 and 24	5 40	6 15
18 and 20	5 25	6 00
16	5 10	5 85
12 and 14	4 95	5 70

An extra is now charged on galvanized sheets, 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20 cents per 100 pounds. Other gauges show no change for different widths.

An extra 40 cents per 100 lbs., is charged for Keystone and Premier brands copper-bearing sheets.

PLATES, CANADA—	Per box
Dull, 60 sheets	5 65
Ordinary, 52 sheets	5 60
PLATES, COKE TIN—	
IC, 20 x 28, 112 sheets	13 50
IX, 20 x 28, 112 sheets	16 50
IX, 20 x 28, 56 sheets	9 00
PLATES, CHARCOAL TIN —	
IX, 20 x 28, 112 sheets	14 00
1XX, 20 x 28, 56 sheets	16 00
PLATES, TERNE—	
IC, 14 x 20, 112 sheets	12 00

QUIET BUSINESS IN SOIL PIPE WITH NEW DISCOUNTS MAINTAINED

Toronto

Soil pipe and fittings are still being quoted at the recently revised discount levels, with current business described as quiet. It is considered a little early in the season for any marked revival. Prices on American 8-inch extra heavy soil pipe and fittings are now quoted on an easier level, but this size is in very little request, and domestic quotations remain at net list.

SOIL PIPE —	
2 inch	40 per cent.
3 inch	40 per cent.
4 inch	40-5 per cent.
5 and 6 inch	40 per cent.
8 inch	net
FITTINGS -	
2 to 6 inch	50|5 per cent.
8 inch	net

FAIR TRADE RECORDED IN BOILER TUBES

Toronto.

Trade in boiler tubes is described as fair at present, with one distributor stating that it was as good as could reasonably be expected at this time of the year. There has been some improvement in demand evident during recent weeks, and according to the general opinion in these markets, current business has not been at all bad. Prices are generally unchanged, with the following list governing all moderate orders. It is admitted, however, that some shading of these quotations has appeared where an unusually attractive inquiry is made:

BOILER TUBES—	Seamless	Lapweld
1 inch	26 00	
1¼ inch	27 25	
1½ nch	26 25	
1¾ inch	29 75	25 00
2 inch	28 00	22 00
2¼ inch	32 00	25 00
2½ inch	40 00	27 00
3 inch	44 00	35 00
3½ inch	60 00	40 00
4 inch	75 00	50 25

QUOTATIONS SAGGING ON BAR IRON AND STEEL

Toronto.

Prices show softness in the market for bars and shapes, with certain producers in the south having cut prices on bars around $1.00 per ton in the effort to obtain sufficient orders to keep the mills running at a moderate capacity during the present season. There has been no general changes recorded, however, but the current activity in steel circles contains more of an expectation for Spring improvement than an actual volume at present. Quotations are described as sagging, but whether this condition will spread to the local distributors also, cannot be ascertained. The following prices are nominally in effect, with shading for any attractive order being general:

IRON AND STEEL		
Mild steel bars, base	3 00	3 25
Mild steel bands, 3-16 in. base	3 50	3 75
Bar iron, base	3 00	3 25
Angle iron, base	3 10	3 35
Horseshoe iron	3 75	4 10
Tire steel	3 50	3 75
Spring steel	5 50	6 00
Crucible cast sheet steel	30 00	35 00
Mining drill steel		18 50
Cast tool steel, medium	20 00	23 00
Cast tool steel, high grade	30 00	36 00
Sleigh shoe steel	3 00	3 25
Norway iron	12 50	15 00
Toe caulk iron	4 00	4 50
Hoop steel	3 75	4 25

EASIER BASE PRICE NOTED ON BRASS RODS

Toronto.

A recession of one cent per lb. in the base price on brass rods has appeared in certain quarters with quotations covering other copper and brass products remaining unchanged. Copper in the ingot stage has recorded slightly easier levels with these developments attracting considerable attention in view of the recent firmness reported in these markets. The announcement that some copper mines are contemplating a resumption in operations is considered one of the contributing factors in the easier tone. The fluctuations, however, are not considered of sufficient extent

(Continued on page 32)

J. M. T. Plumbing Goods
MORRISON

Plumbing businesses only grow in one way: By keeping the old clients and gaining new ones. The most substantial growth is founded on satisfied clients. Everyone admits the truth of this.

To consistently specify Morrison Plumbing Goods is the surest way of assuring satisfied clients and holding the trade and good-will of old customers whose commendation soon brings you the new ones.

We Stock—

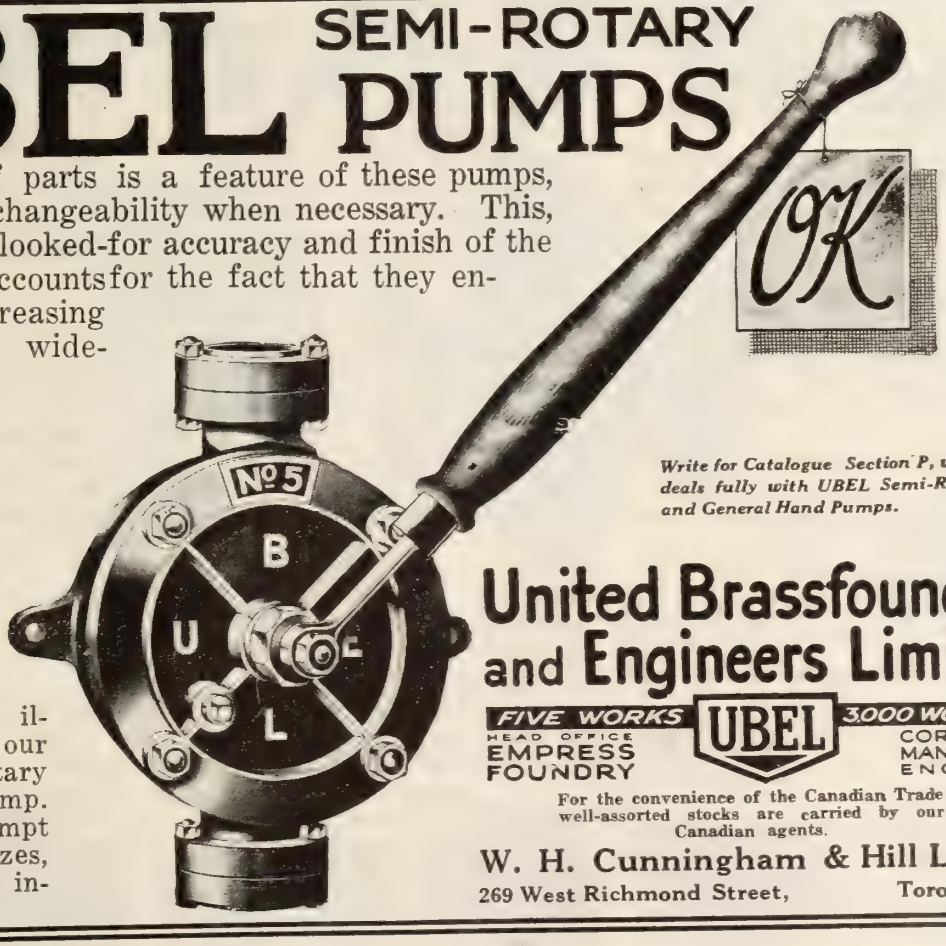
Iron Pipe,
Lead Pipe.
Cast Iron Soil Pipe, and Fittings.
Brass Tube, ⅛ to 10-inch O.D.
Brass Pipe—Iron Pipe Sizes.
Copper Pipe—Iron Pipe Sizes.
Brass Rod—Round and Hexagon.
Copper Rod.
Sheet Brass.
Brass Wire.
Brass and Copper Pipe.
Iron Pipe Fittings.
Brass Pipe Fittings.
Pipe Fitters' Tools.
Stocks and Dies.
Pipe Wrenches.
Pipe Cutters.
Pipe Vises.
Etc., Etc.

James Morrison Brass Mfg. Co.

93-97 Adelaide St. West, Toronto

UBEL SEMI-ROTARY PUMPS

Standardization of parts is a feature of these pumps, guaranteeing interchangeability when necessary. This, combined with the looked-for accuracy and finish of the UBEL product, accounts for the fact that they enjoy an ever-increasing popularity and widespread demand.



Write for Catalogue Section P, which deals fully with UBEL Semi-Rotary and General Hand Pumps.

The accompanying illustration shows our Fig. P 1 Semi-Rotary Double-Acting Pump. We can give prompt shipment of all sizes, from ½ in. to 3 in. inclusive.

United Brassfounders and Engineers Limited

FIVE WORKS — UBEL — 3,000 WORKERS

HEAD OFFICE EMPRESS FOUNDRY

CORNBROOK MANCHESTER ENGLAND

For the convenience of the Canadian Trade well-assorted stocks are carried by our Canadian agents.

W. H. Cunningham & Hill Limited

269 West Richmond Street, Toronto, Ont.

TORONTO MARKETS

(Continued from page 30)

to reflect similar changes in prices on these products in general.

BRASS—	
Sheets base, per lb.	$ 0 23
Rods, base, per lb.	0 20
Tubing, base, per lb.	0 25
COPPER —	
Rods, base, per lb.	0 28
Soft sheets, plain, 1 oz. and heavier, lb.	0 39
Do., plain tinned, 16 oz. and heavier, lb.	0 37
Do., polished and tinned, 16 oz. and heavier, lb.	0 42
Tubing	0 29

DULL SESSION PREVAILS IN ENAMELLED WARE

Toronto

Current trade in enamelled ware products is described as quiet, with this condition being not unexpected at this time of the year. The cold weather naturally restricts building operations, and prevailing activity is of a minor nature. Quotations are maintained at the levels recently in effect as follows:

ENAMELLED WARE—	
Enamelled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.	51 40
Do., 5½ ft.	57 10
Lavatories—	
17x10" Apron F139 or P4045	15 30
18x24" Apron F154 or P3845 or P3847	23 60
18x21" Apron F169 or P4205	17 60
18 x 21" Roll Rim, F197, F199 or P4655-6	15 40
17 x 19" Roll Rim, F241 or P4345	12 60
Sinks, Roll Rim, 16x24 in.	18 10
Do., 18 x 30 in.	23 00
Do., 20 x 30 in.	24 70

Sinks, Flat Rim—	1 only	2 only	3 only
16 x 24	$7 60	$7 70	$7 80
18 x 30	8 50	8 60	8 70
20 x 30	9 70	9 80	9 90

Above prices list, less 33 1-3 per cent.

All steel enamel baths, 4 and 4½ ft.	$14 00
Do., 5 ft.	15 00
Do., 5½ ft.	16 75

These quotations are net.

CONSTRUCTION ACTIVITY IS REFLECTED IN RADIATORS

Toronto

Trade in radiators and boilers is described as fairly satisfactory for this season of the year. Some manufacturers state that sales are slightly better than at this time last year, while hardly exceeding present expectations. Interest in these products chiefly relies on constructive work, and brisk building activity is generally looked for during 1922. This should reflect in the later volume of business in radiators and similar goods. Following are the recently revised quotations:

RADIATORS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60.

Discount on 2, 3, 4 and 5-column standard sizes, 59 per cent. for water and 60 per cent. for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 51 per cent. for water and 52 per cent. for steam.

Discounts on 1-column hospital size, water 33 per cent.; steam 34 per cent.

Wall radiators—5 ft. $1.15; 6 ft. $1.10; 7 ft. $1.05; 9 ft., $1.05; 12 ft., $1.05. Discount 56 per cent.

ANTICIPATE SPRING WILL IMPROVE CLOSET SALES

Toronto

Orders for closet combinations and fixtures are neither numerous or extensive. However, the recent declines in quotations are evidently aimed at stimulating the trade basis for the anticipated volume of Spring and Summer business. Little variation is recorded in the general conditions, with prices being maintained at the following levels:

CLOSET COMBINATIONS, low down	each
Closet, standard outfit, oak	$26 00
Do., with post hinge seat	26 75
Do., mahogany Vitro or Pussyfoot, with mahogany post hinge seat and cover	28 75
Do., vitreous china, with oak post hinge seat and cover	29 25
Do., vitreous china, with mahogany post hinge seat and cover	29 50
Do., white Vitro or Pussyfoot, with maoak post hinge seat and cover	29 25
Do., white Vitro or Pussyfot, with mahogany post hinge seat and cover	29 50
Do., enamelled iron tank with oak post hinge seat and cover	29 25
Do., enamelled iron tank with mahogany post hinge sea and cover	29 50
Additions or reductions to above	
Add for reversible trap bowl	1 25
Add for syphon jet bowl	7 00
For ⅜ in. valve on supply pipe	1 50
Deduct for supply pipe	0 70
Deduct for floor flange and bolts	0 80
CLOSET BOWLS—	
Washdown bowl, less spud	10 00
Reversible trap bowl, less spud	11 25
Syphon jet bowl, less spud	17 00
"Richelieu" bowl	10 50
CLOSET TANKS, low down	
Oak, Vitro or Pussyfoot tank with fittings, less seat	13 10
White Vitro or Pussyfoot tank with fittings, flush elbow and supply	15 25
Vitreous china tank with fittings, flush elbow and supply	18 00
Enamelled iron tank with fittings, flush elbow and supply	18 00
CLOSET SEATS—	
Oak wod srip seat and cover	3 25
Oak post hinge seat and cover	4 00
Mahogany finish post hinge seat and cover	4 25

NEW LIST ADOPTED ON RANGE BOILERS

Toronto

Just as we go to press, Sanitary Engineer, is advised that a new standard list on range boilers has been adopted. This shows a complete revision from the prices which have recently been in effect, but a varying discount quotation is announced on the standard weight and extra-heavy range boilers. The following is the new price list, together with discounts as announced by certain local manufacturers and distributors:

Size.	List Price.
5-gallon	$13 50
12-gallon	14 00
18-gallon	15 00
25-gallon	16 50
30-gallon	17 50
35-gallon	20 50
40-gallon	22 75
52-gallon	38 00
66-gallon	60 75
82-gallon	74 00
100-gallon	103 00
120-gallon	117 00
144-gallon	164 00
168-gallon	187 00
192-gallon	210 00

Discounts, Standard weight, 50 per cent.
Extra heavy, 40 per cent.

MAINTAIN RECENT NEW DISCOUNTS ON TROUGH

Toronto

Quotations on eavestrough and conductor pipe remain at the recent easier levels, with business in these products naturally restricted at this season of the year. Weather conditions offset any activity in such construction work where trough and piping are required, but with the recent price developments placing quotations on a moderate basis for Spring trade, future improvement is generally looked for in these markets. Following are the current levels and discounts:

TROUGH (EAVE)—

O. G. Square Bead and half round. Size in girth:	Per 100 ft.
8 in.	15 90
10 in.	17 70
12 in.	21 20
15 in.	28 80
18 in.	36 50

Less 70 and 10 per cent.

PIPE (CONDUCTOR)—

Plain, round or corrugated.

	Per 100 ft. in 10 ft. lengths.
2 in., in 10 ft. lengths, list	18 40
3 in., in 10 ft. lengths, list	23 30
4 in., in 10 ft. lengths, list	29 60
5 in., in 10 ft. lengths, list	40 00
6 in., in 10 ft. lengths	49 00

Less 70-10 per cent.

ELBOWS (CONDUCTOR)—	
2 inch, list	5 25
3 inch, list	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00

Less 60 per cent.

CORRUGATED SHEETS AT RECENT LEVELS REVISED

Toronto.

The corrugated sheet market reflects the trend of developments in primary sheet circles, and quotations remain at the recently revised levels. Conditions are described as quiet, at present, but with general expectations prevailing for improvement in the early Spring. The discount of 10 per cent. is now in effect, with the list prices remaining unchanged as follows:

CORRUGATED SHEETS—	Per 100 Sq. Ft.
No. 28 gauge	$6 50
No. 26 gauge	7 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50

Less 10 per cent.

Lighter than 24 gauge and wider than 27 inches, 75c a square extra.

ACTIVITY IN PIPE IS DECIDEDLY MODERATE

Toronto

Activity in tubular goods is generally around the same proportion as prevailed during the month of December, which means that the volume of business is decidedly moderate. A curtailment in pipe buying was prevalent towards the end of the year, and the revival has not yet materialized. It is a little early in the season, and current trade is spasmodic. The pipe mills in southern centres are averaging a production rate of around 60 per cent. of capacity. List No. 54, still governs the domestic markets.

JUST MODERATE TRADE IN SCRAP MATERIALS

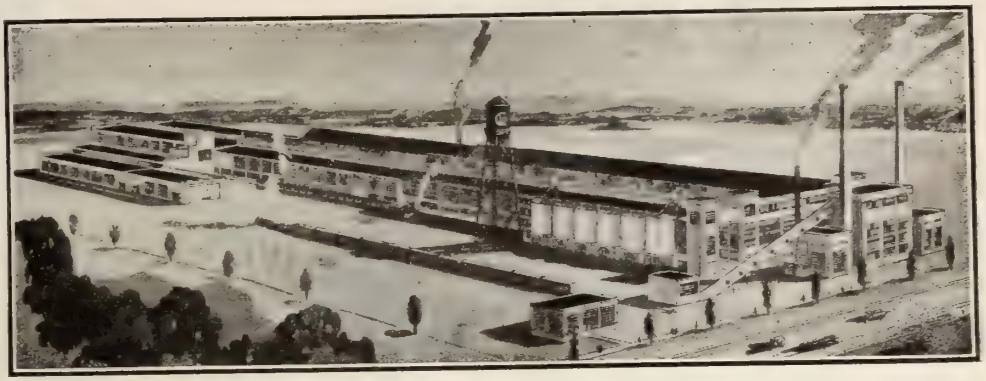
Toronto

Considering that the majority of consumers are still confining their purchases to current needs, dealers report that there is a fair amount of business being done. Business in scrap rubber is low, but copper scrap has continued

(Continued on page 34)

The Libbey-Owens Co. Use Jenkins Valves

It was but natural when it came to a question of the best valve installations that the Libbey-Owens people should select "JENKINS"—the valves that are tested for service and guaranteed satisfactory.



The Libbey-Owens Glass Producing Plant at Hamilton, Ont.

Fig. 106

The trouble-free service which Jenkins Valves always render reflects credit on the man who instals them. Complaints and "come-backs" are practically unknown because Jenkins Valves are made to satisfy and—they do.
A type and a size for every service everywhere.

Jenkins Bros.
LIMITED
TRADE JENKINS MARK — TRADE JENKINS MADE
Head Office and Works: 103 St. Remi St. Montreal Can.
TORONTO WINNIPEG VANCOUVER
EUROPEAN BRANCH 6 GREAT QUEEN ST. KINGSWAY LONDON, W.C.2 ENG.
AGENCIES IN ALL THE PRINCIPAL COUNTRIES OF THE WORLD
Jenkins Bros

FITTINGS LIMITED

OSHAWA, CAN.
MANUFACTURERS OF
"DIAMOND" PIPE FITTINGS

TORONTO MARKETS

(Continued from page 32)

to move, although less actively than during recent weeks. There have been no developments to record in other metals, they having moved very slowly. Activity in iron and steel scrap is somewhat restricted. The following are averages of dealers' buying prices for fairly large quantities:

SCRAP MATERIALS—		
Scrap Iron		
Gross Tons —		
Heavy melting steel (Hamilton)	11 50	$12 00
Borings and turnings	2 50	3 50
Rerolling rails	10 50	11 50
Scrap pipe	6 00	7 00
No. 1 railroad wrought	10 25	11 25
Steel turnings (Hamilton)	6 50	7 50
Agricultural malleable	10 00	11 00
Railroad malleable	11 00	12 00
Net tons —		
No. 1 cast	18 00	19 00
stove plate	12 50	13 50
Grate bars	11 50	12 50
Standard car wheels	13 50	14 00
Scrap Metals.		
Heavy copper and wire	10 50	11 00
Light copper	8 00	9 00
No. 1 composition	9 00	10 00
No. 1 comp. turnings	6 00	7 00
Light brass	3 00	5 50
Heavy yellow brass	5 50	6 50
Heavy lead	4 00	4 50
Tea lead	2 00	2 50
Scrap zinc	3 75	4 25
Scrap Rubber.		
Boots and shoes	2 50	3 00
Lumbermen's ruber boots	1 50	2 00
Auto tires	0 50	1 00
Solid tires	0 75	1 25

QUIETER TONE RECORDED IN INGOT MARKETS

Toronto.

The ingot metal markets are recording a slightly easier tone, with the exception of aluminum. Forward inquiry for aluminum has shown some improvement. A reaction from recent higher prices recorded at primary centres has developed in copper and spelter, with tin quotations fluctuating on most markets. Consuming demand is again of a quiet nature, with litt'e activity generally reported.

COPPER.—The announcement tha. some copper mines are planning to resume operations in the near future, has caused a reaction from the firm position recently noted in copper circles. Some very slight concessions in price were again offered during the week to induce buyers to re-enter the market, but only declines have resulted. It is stated that large consumers are booked up for the present and are adopting a waiting position as regards futures. The local situation has failed to register any improvement, quotations remaining at 17½ and 18 cents.

TIN.—The tin market continues to fluctuate at primary centres, but there is little fundamental change to record. Prices have eased in London, and this has not encouraged the immediate outlook. Consumers' buying is reported light. Local activities are unchanged, with prices nominally quoted at 38 cents.

LEAD.—This metal has been quiet, but large producers are maintaining quotations, in spite of the absence of interest. It is reported that London stocks are fairly low, and an improved inquiry from this direction is expected in some quarters. Meanwhile, the local quotations are unchanged, generally ranging at $6.75.

SPELTER.—An easier tone has also been recorded in this market, and the improvement of recent weeks is now only in moderate evidence. Some concessions are reported from primary markets, but prices on domestic centres are generally unchanged, the local figure being $7.25.

ANTIMONY.—With prices locally ranging between 8 and 10 cents, there is little new to record in this market Southern primary centres report an easier tone.

ALUMINUM.—The tone is firmer in aluminum. Consuming inquiry for forward delivery is reported better, and prices are moving up in some quarters. The change is only slight, however, as yet. Local prices still remain at 27 cents.

WINNIPEG MARKETS

WINNIPEG, January 30.—The reduction in quotations on enamelled ware products supplies the feature revision on the current plumbing and steam-fitting markets. Other sanitary and heating supplies are generally unchanged in price with the exception of cotton wastes which record a slight downward revision in both white and colored grades. Wrought iron piping is being maintained at the recent new list, and quietness now prevails in both the primary and domestic sheet markets. Current trade is described as quiet, but the demand for this class of goods is generally expected to increase in volume with the advent of Spring trade.

LITTLE VARIATION IN SHEET QUOTATIONS

Winnipeg.

An easier trend is reported from primary steel centres on certain steel products, but the domestic markets show very little change. The winter dullness is now apparent, with prices generally unchanged around the following levels:

SHEETS—	Per 100 lbs. Black.	Galv.
10 gauge	5 70	....
12 gauge	5 70	....
14 gauge	5 80	....
16 gauge	5 90	6 75
18 and 20 gauge	6 30	6 90
22 and 24 gauge	6 35	7 05
26 gauge	6 40	7 20
28 gauge	6 65	7 80
10¾ oz.	....	8 20

LITTLE VARIATION IN RANGE BOILER MARKET

Winnipeg.

Although there is an effort being put forth to stabilize the range boiler market, nothing definite has been reached as yet, and quotations are unchanged. Whether new prices will be forthcoming soon, cannot be determined, but it is thought some arrangement will be decided upon shortly. Following are the unchanged quotations:

RANGE BOILERS—	
30-gallon	9 00
35-gallon	13 25
40-gallon	16 25
52-gallon	23 45
66-gallon	33 15
82 gallon	40 60
100-gallon	62 50
120-gallon	75 00

ENAMELLED PRODUCTS NOW REGISTER REDUCTION

Winnipeg.

All enamelled ware, such as bath, sinks, and lavatories are now quoted easier in price. The extent of the reduction varies on the different products, with substantial declines in some lines.

REDUCED PRICES APPEAR ON COTTON WASTES

Winnipeg.

In keeping with the easier markets on cotton goods cotton waste has been reduced in price. Following are the new quotations:

COTTON WASTE—	Per lb.
Cream polishing	0 22
White—XXX extra	0 18½
XX Grand	0 17½
XLCR	0 16½
X Empire	0 15½
X Press	0 14
Colored—Fancy	0 15½
Lion	0 14
Standard	0 12½
Popular J	0 11
Keen	0 09½

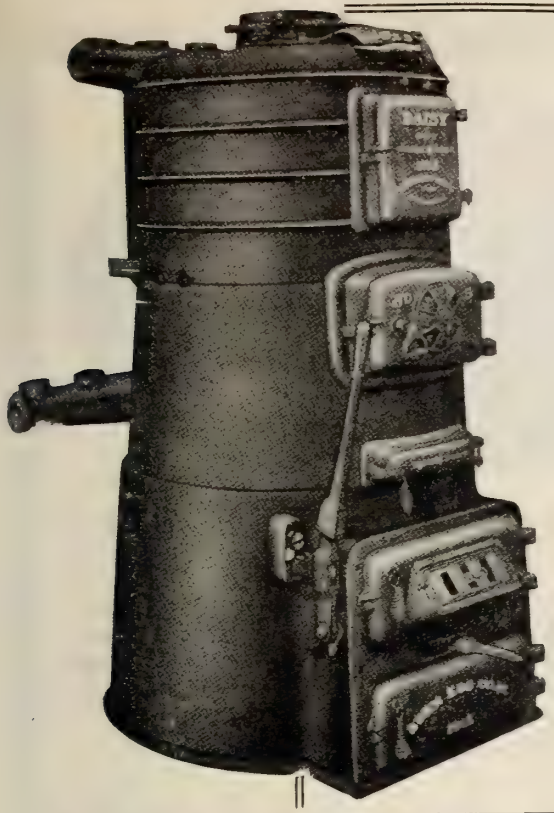
BUSINESS QUIET IN WROUGHT PIPING

Winnipeg.

Quotations on wrought piping are maintained at list No. 54, and very little new development has been recorded. Current trade in these products is reflecting the seasonal dullness at this period of the year.

NEW COMBINATION STOVE

Lemarre & Company, Limited, St. Remi, Quebec, are putting on the market a new combination stove for coal and wood. The above firm have now patented this, and claim it is the only one of its kind on the market. In appearance, it is similar to the ordinary cooking range, but the fire pot is different as it is built on the principle of the Quebec Heater, lined with fire brick, either with or without grates. The manufacturers claim it will give better service for heating purposes, while it will cook just as well at any range.



The Common-Sense Boilers

DAISY

Hot Water Boilers

Most of your customers can be relied on for common sense. You can be assured of interest and find it easy to put in Daisy Boilers when you show the fuel economy, easy of operation and perfect satisfaction.

If possible show your prospect a Daisy you have installed. No argument beats the Daisy in actual use and the invariable enthusiasm of its new owner.

There are over 60,000 Daisy Hot Water Boilers in use: 'Nothing succeeds like success'; you can easily see there is good business in handling the "Daisy."

WARDEN KING, Limited, Montreal
BRANCH OFFICE: 136 Simcoe St., TORONTO

Good for Houses?

Yes, and Your Business!

VULCAN

Pure Air Furnaces

The greater radiating surface on the Vulcan makes them more effective. They are economical, simple and easy to operate, and very profitable for you to install. Built of heavy metal, they are very durable in use.

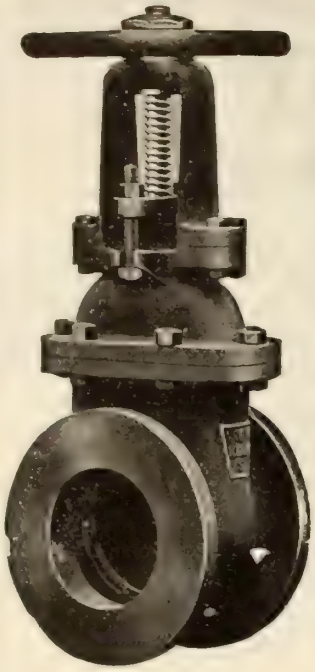
Read This

London, Feb. 11th, 1921.

Gentlemen:—
I have used the Vulcan Pure Air Furnace for several years. I find it economical on fuel, easy to operate, and as it has a greater radiating surface than any other in its class, I have been well pleased with the results. I can recommend its use to any. I believe it to be durable on account of the heavy metal in its construction.

DR. COPELAND.

The Vulcan Co., Limited
London - Canada



Kerr Valves

Give Character to Work

They reflect credit on the man who specifies them, the man who installs them, and they give complete satisfaction to the men who use them.

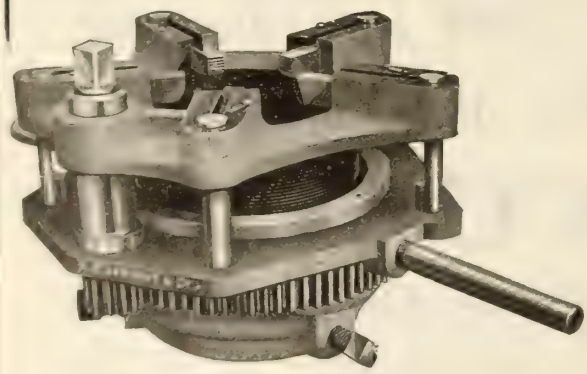
Take the Kerr Gate Valve illustrated, for instance: It is well designed; strong and sturdily made; note the compact and narrow face to face dimensions; observe the accessibility of the stuffing box; the strong, generous flanges and the properly spaced bolting.

KERR VALVES ARE GOOD VALVES

Catalogue No. 5 on application.

The Kerr Engine Co., Limited

Valve Manufacturers - Walkerville, Canada



"Toledo" Geared Adjustable Threading Tool. No. 2½. Capacity 2½ to 6 in. inclusive. Weight, 120 lbs.

They're Essentials in Your Trade—
Why Not Have the Best?

REGISTERED J TRADE MARK

JARDINE

Pipe Threading Tools

Greater production comes from efficient work. To get the best and quickest results in saving time and lowering costs you need the best tools. Every time you thread a pipe with "Jardine" or "Toledo" Pipe Threading Tools you save time and trouble. This means a definite saving of money which adds to your profits for the year.

A. B. Jardine & Co., Limited, Hespeler, Ontario

Ontario, West of Brockville:
W. H. Cunningham & Hill,
269 Richmond St. W., Toronto, Ont.

Brockville and East:
J. R. Devereaux & Co.,
New Birks Bldg., Montreal, Que.

Winnipeg and West:
Stanley Brock, Ltd.,
Winnipeg, Man.

COUPON

Name .....

Address .....

Sanitary Engineer

Markets

Sanitary Engineer Marketing Reports are eagerly looked for by progressive plumbing and heating Engineers of Canada.

A thorough knowledge of prevailing prices and tendencies in the trade is an absolute necessity for the conduct of any business in these days of frequent price fluctuations.

Sanitary Engineer Marketing Reports are compiled at considerable expense. We are determined to keep them reliable, complete, and up-to-date.

Sanitary Engineer
Plumber and Steamfitter of Canada

Gem Automatic Air Valves

This automatic air valve is made of the best brass obtainable and is equipped with high grade carbon. The mechanism is perfect, every valve being guaranteed by us.

Ask for a catalog of Steam Specialties, as we manufacture many articles of interest to Plumbers and Steam Fitters.

All goods conform with custom regulations. When in New York call at our office and warehouse, 234 Water St., and see our complete line.

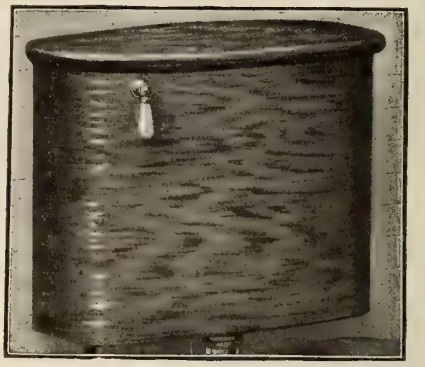
The Beaton & Cadwell Mfg. Co.

New Britain, Conn.

Eastern Agents:
J. R. Devereaux & Co.,
New Birks Bldg.,
Montreal.

Western Agents:
A. E. Hinds & Co.,
Galt Building,
Winnipeg

TEN THOUSAND
"PUSSYFOOT" TANKS
SOLD 1921



Beauty, Style, Refinement, combined with the "PUSSYFOOT," valve, simplicity makes a Silent, Efficient, Durable, Closet Tank.

ALL JOBBERS

THE CANADA METAL CO., LIMITED
TORONTO

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Every advertisement in this magazine is worth reading. It is the product of some concern that is using a modern piece of selling machinery— technical paper advertising—to present most effectively to you the leading features of its line.

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Allpriser—
Your Price Clerk

Write for further information

K. B. ALLISON

4 Irwin Ave. - Toronto, Ont.

HERCULES
Strongest Drain Pipe Solvent Made

NO FUMES

Hercules quickly clears clogged sink wastes, closets, sewers, etc., also frozen stacks and leaders. Saves time tearing up floors. Guaranteed not to injure plumbing fixtures or piping. Price $6.00 dozen.

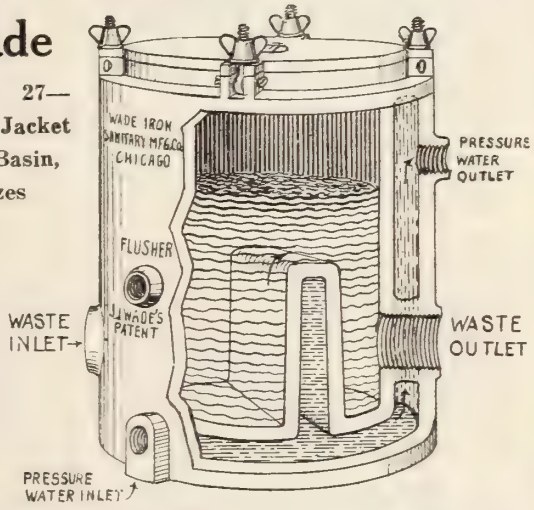
For sale by jobbers and

W. H. CUNNINGHAM & HILL, LIMITED

269 West Richmond St., Toronto

Wade

B. Fig. 27—Water Jacket Grease Basin, Four Sizes



Water Jacket Grease Basin

Water Jacket Grease Trap pays for itself and installations in hotels and restaurants in short time. Grease is skimmed off and soap is made. Stops all clogging at waste pipes.

A fixture that you can guarantee to meet all sanitary requirements.

Write for Catalog "B"

WADE IRON SANITARY MFG. CO.

551 W. Fulton Street, Chicago, Illinois

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Our new HOME STUDY course in BUSINESS ADMINISTRATION is now ready for the trade. It teaches you the most modern methods of Business.
Learn to extend your Markets; enlarge your Business; Learn to adjust all the business combinations to the limit. We build on top of your present Ability and give you a business training equal to the best.
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Full information free.

COURSES IN MODERN BUSINESS ADMINISTRATION
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ST. LOUIS TECHNICAL INSTITUTE

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United Brassfounders & Engineers Ltd., Manchester, Eng.

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Beaton & Corbin Mfg. Co., Southington, Conn.
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James Morrison Brass Mfg. Co., Toronto.
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Trimont Mfg. Co., Roxbury, Mass.
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Wolverine Ltd., Toronto, Ont.
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Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
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Port Hope Sanitary Mfg. Co., Ltd., Port Hope

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Empire Mfg. Co., London and Toronto.
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Lord & Burnham Co., Ltd., Toronto.
Steel & Radiation Ltd., Toronto.
Warden King Ltd., Montreal.

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Healy Ruff Company.

RADIATOR NIPPLES
Fittings Limited, Oshawa.

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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.

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Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
The Canadian John Wood Mfg. Co., Toronto.
Toronto Hardware Mfg. Co., Toronto.

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W. H. Cunningham & Hill, Ltd., Toronto.

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W. H. Cunningham & Hill, Ltd., Toronto.

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J. H. Williams & Co., Brooklyn, N.Y.

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Fittings Ltd., Oshawa.

Advertisements in Sanitary Engineer are Reliable

Sanitary Engineer accepts advertisements only from reliable concerns.
It will pay you to investigate offers you see advertised in Sanitary Engineer.

THE GENDRON MANUFACTURING CO., LIMITED, *TORONTO*

WHEN IN HAMILTON

at the Hardware Convention in the Armouries you are invited to visit our Exhibit in the main section.

We will show
BATH-ROOM
FITTINGS

HARDWARE
SPECIALTIES

The prices have been readjusted downwards on all Towel Bars, Soap and Sponge Holders, Paper Holders, Glass Shelves. See our representatives at the big show February 14 to 17.

"'Tis the Gendron aim and pride to make you satisfied."

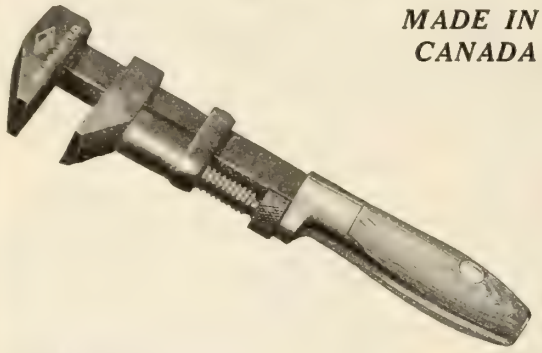
TESTED Soil Pipe

IT COSTS NO MORE

MANUFACTURED BY

FORWELL FOUNDRY Ltd.

KITCHENER, Ont. **SOIL PIPE and FITTINGS**



MADE IN CANADA

Old Friends—

Like old friends, tried and true, "W & B" Knife Handle Wrenches stand any test.

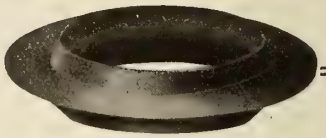
7 sizes — 6 to 21 inches, at your dealer's.

Booklet on request.

J. H. WILLIAMS & CO., Ltd.

"The Wrench People"

77 Thorold Road, St. Catharines, Ontario.



Wolverine Syphon Ring

Feather Edge—made of the best materials. Full stock in all sizes.

Bevel Bibb Washers, special asbestos and rubber compound. Suitable for hot or cold water.

Flat Bibb Washers, in rubber and asbestos, Wolvo white fibre, red fibre or leather, the most complete line in Canada.

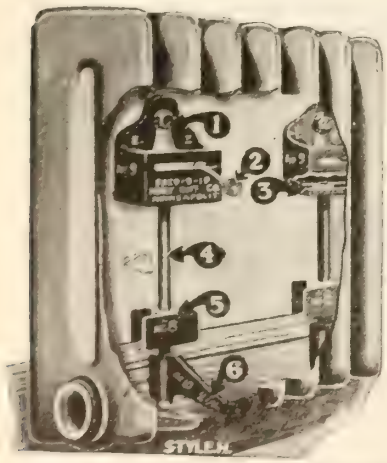
Union Washers in rubber, fibre or paper, and in all sizes up to two-inch.

Our Name Wolverine Your Guarantee

Order By Mail

WOLVERINE LIMITED

76 Nelson St. **Toronto**



E-Z Radiator Hanger

Manufactured in Canada

(1) One Bolt.
(2) Invisible Washer.
(3) Horizontal Adjustment.

Reasonable in Price

(4) Vertical Adjustment.
(5) Baseboard Adjustment.
(6) Made for Wall and Column Radiation.

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D. G. Brison, Standard Bank Building, Vancouver
A. Walker, 514 McLean Bldg., Calgary.
E. T. Flanagan, 229 College St., Toronto.
Eager Coombs & Co., Ltd., Halifax, Can.
Shaver Bros., Booth Bldg., Ottawa
S. T. Hadley, 304 University Street, Montreal.

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West Furnace Carburetors

Positively Save 15% in Fuel

These reliable, efficient carburetors supply the hot oxygen necessary to burn the gas from the free carbon so generously present in anthracite coal.

This means saving the valuable heat components that formerly went up the chimney after contributing practically nothing in the way of heat. The proposition is sound—write us to-day.

Territories Still Open

The Canadian Combustion Co., Ltd.
43 Victoria St. Toronto

THE Royal
Automatic Gas Water Heater

PAYS THE PLUMBER A GENEROUS PROFIT

You get a liberal discount on the heater itself and make a good profit on the installation. The Royal Automatic is one compact unit—easily installed anywhere in quick time. No trouble—keeps a supply of piping hot water ever ready in the storage tank. No coils—never limes nor clogs up. Free from fumes. Just the perfect, convenient, efficient water heater that makes lasting friends for you and builds up your business.

Sold only by or through plumbers.

Write for literature and complete information. Today!

BASTIAN-MORLEY, LIMITED
195 Victoria Street, Toronto

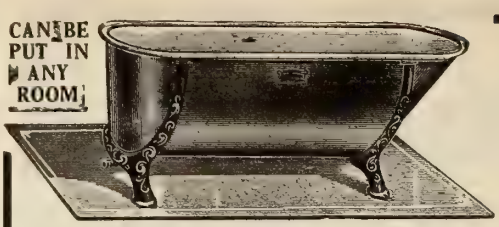
Easily Cleaned

The APEX Closet Bowl has special features that place it in a class by itself.

Clean-out device located at head of trap. Any obstruction can be located and removed in five minutes without disconnecting from floor or water. **Cannot overflow.** Silent in operation.

Find out all about the APEX before installing another closet bowl. Canada Patents for sale.

THE APEX SUPPLY CO. 203 E. STATE ST. TRENTON N.J.



PROFITS IN COUNTRY TRADE

This advertisement is of interest to you if you number amongst your customers people who do not have the advantages of city conveniences.

TWEED ENAMELLED STEEL BATHS

—made of galvanized steel, enameled, and installed without plumbing—give country folk the advantages of a modern bathroom at a very small cost. Write us for price lists and further particulars about these baths, the "Tweed" Sanitary Closet and other home conveniences.

THE STEEL TROUGH AND MACHINE CO., LIMITED
Tweed, Ont., Canada.

Louis A. Payette, 304 University St., Montreal, Quebec and Eastern Representative.

WROUGHT PIPE

Suitable for the approaching period of building activity, road construction, etc. This is a line of great importance in making successful, profitable contracts. Our C. T. Brand of Wrought Pipe has been

THOROUGHLY INSPECTED

by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes ⅛-in. to 4-in. Black or Galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your Jobber for C. T. Brand Wrought Pipe

Canadian Tube and Steel Products Co., Ltd.
Operating Canadian Tube and Iron Co., Limited
Works at Lachine Canal, Montreal

Bull Dog Brand Seats & Tanks

Strongly made of superior materials, and thoroughly proof against warping, opening, etc. Investigate the Bull Dog line of products.

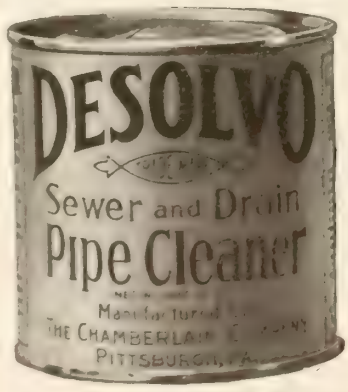
HOURD & CO., LIMITED
London, Canada.

Superior Plain

Closet Bend

The advantages of this fitting appeal to every thinking engineer. It is absolutely tight, no more floor seepage, permanent and at the same time easily removable for repair or replacement of bowl, widest range of adjustable flange and fits any make of closet. Made in 18 in. lengths, plain or tapped on both sides. Ask your jobber for the K.T. Closet Bend, Plain or Tapped

When Answering Advertisements Please Mention Sanitary Engineer



Clears Clogged and Frozen Pipe

No Need to Tear up Floors or Lawns

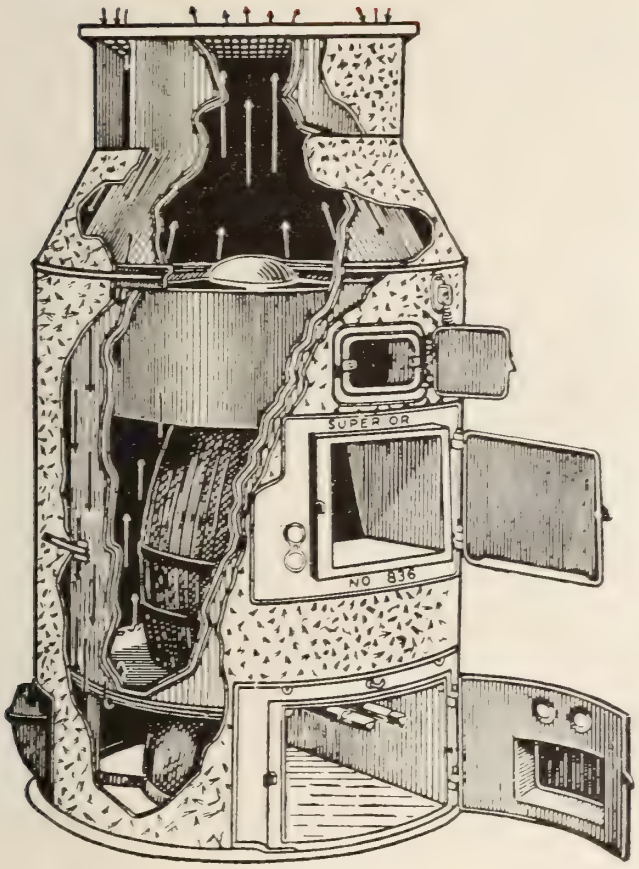
Display Desolvo conspicuously in your windows. A brief, clear show-card will explain its usefulness to the user. Better yet, put it in your local advertisements.

You will find a gratifying volume of sales as soon as you show users what Desolvo does for them, and let them know you sell it.

The Chamberlain Desolvo Co., Limited
109 Church Street, - TORONTO

Western Canada Representative: N. D. McPhail and Company, Standard Bank Bldg., Vancouver, B.C.
Eastern Canada Representatives: Richardson and Bureau, 55 St. Francis Xavier St., Montreal.
Ontario Representative: L. F. Mayne, 875 Trafalgar St., London, Ont.

PILOT SUPERIOR PIPELESS FURNACE



Easy to install—A good mechanic can install it in one day.

It Leads in Selling Points

Adjustable Collar. This is handy and often extremely valuable. It permits adaption to varying heights of cellars.

Direct-Connected Clean Out. This is another convenience and comfort for the user. Its advantages are too obvious to require comment.

Hot Blast. This acts as a carburetor, supplying the additional heated oxygen to make the combustion perfect.

The Dust-Damper is a convenience that is much appreciated in keeping the dust from ascending from ash-pit to be deposited in the house.

Cast Iron Ashpit Bottom. A protection that makes it easier to shovel out the ashes with no fear of injury to the heating plant or cellar floor.

The Deep Roomy Ashpit permits a reasonable accumulation of ashes without risk of burning out the grate-bars.

Anti-Clinker Grate, the four-bar triangular type. This is the simplest and best grate ever invented.

Correctly Proportioned Combustion Chamber, a help and economy in saving fuel and yet an assurance of a warm, genial temperature in the house.

Fire Pot in Two Sections. There are no worries over expansion and contraction with its cracks and fissures.

Deep, wide Cup Joints assure solid, substantial construction with no flimsy connection between sections.

Hall-Zryd Foundry Company, Limited

Manufacturers of Pilot Stoves, Ranges and Furnaces.

Hespeler, Ontario

Western Branch: Post Office Box 687, Winnipeg, Manitoba

The One Best Bet

ONE thing is sure. When you instal a VitrO "No Trouble" Tank you've done a good job. You have a right to feel proud of it. It's going to give a whole lifetime of satisfaction. It's going to be a lasting advertisement for the quality of your work.

"No Trouble" isn't a pet phrase. It's an established fact in regard to VitrO Tanks. Every part of the VitrO Tank is designed and made to avoid trouble. It is a ***perfect*** tank. Outside--a handsome molded, seamless, nonporous tank that can never leak or corrode—— inside a scientifically accurate piece of mechanism.

It pays to instal the best. Choose VitrO for every particular job.

Every Tank Tested
Every Part Perfect

VITRO
NO TROUBLE
TANK

Galt Brass Co., Ltd.

Galt, Canada

Sanitary Engineer
Plumber and Steamfitter of Canada
Vol. XVI. PUBLICATION OFFICE, TORONTO, FEBRUARY 15, 1922 No. 4

Gives Easy Access To The Sewer

A-2231

A very profitable line for the trade is the "Emco" A-2231 Cleanout Plug.

This plug is designed to give easy access to the sewer, and is suitable for a test plug. It is made of brass and is of sufficient weight to give long service. Threads cannot rust and it is easily removed. Also made for iron pipe thread connections.

All "Emco" products are rigidly tested before leaving the factory.

Sold by leading jobbers.

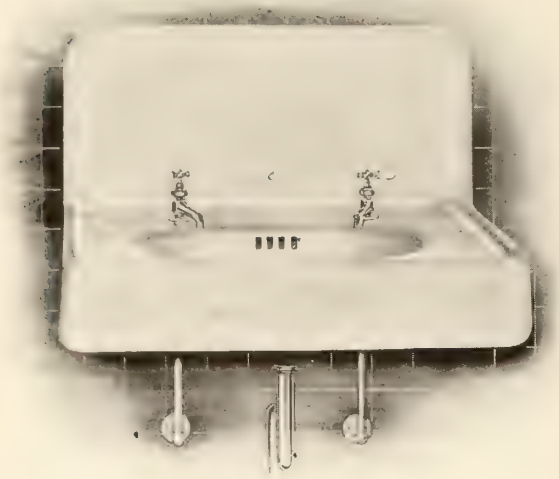
"All fault is gone — when 'Emco' goes on"

Empire Brass Manufacturing Co., Limited

LONDON and TORONTO, CANADA

It Pays in Increased Business to Specify—

Beaver Brand



Durability and Beauty That Make Sales

"Beaver" Porcelain Enameled One-Piece Lavatory is illustrated above with apron, oval-shaped basin with rear outlet, patent overflow and chain stay, on concealed brackets.

Dimensions—Size of lavatory 16x20 inches; basin 10x14 inches; height of back 8½ inches; depth of apron 4¼ inches.

Roughing in measurements—Centre to centre of supplies, 11½ inches; centre of outlet to wall, 6¼ inches; centre of supplies to wall, 3½ inches.

"Beaver" Porcelain Enameled Two-Section Laundry Tub, on painted iron stands, with roll rim and high back, cast in one piece; complete with two wringer holders, N.P. soap dishes, plugs and stoppers; painted exterior.

Dimensions—Length over all, 52 inches; height from floor to top of tub, 30 inches; height from floor to top of back, 40 inches; front to back, outside, 25¼ inches; front to back, inside, 21 inches; depth inside, 13½ inches.

Roughing in measurements—Centre to centre of supplies, 9 inches; centre to centre of outlets, 24½ inches; centre of waste to wall, 6 inches; centre of waste to end, 14¼ inches; height of stands, 16¼ inches; distance from floor to centre of supplies, 34¼ inches.

Amherst Foundry Co., Limited

General Offices and Factory: Amherst, N.S.

Agents:

Ontario:
Monarch Brass Mfg. Co., 71 Brown St., Toronto

Manitoba and Northwest:
E. B. Plewes, 197 Princess St., Winnipeg

The "OLD TWIN"
A Syphon Jet of Proven Merit

THE "OLD TWIN"
With top supply and Integral Seat

THE "OLD TWIN"
With side supply and extended Front Lip.

The Syphon Jet is the highest development of closet manufacture—the large water area, deep seal and powerful syphonic action commending it as the most advanced type of sanitary fixture under any mode of installation.

The "Old Twin" was one of the earliest models of Syphon Jet construction, and although details of its design have been altered in sympathy with modern improvements, its essential characteristics remain unchanged.

There have been many and varied designs of syphon jet closets placed upon the market since its evolution but none have surpassed its underlying superiority in action and practical sanitation.

This closet is produced with a variety of special features including:—

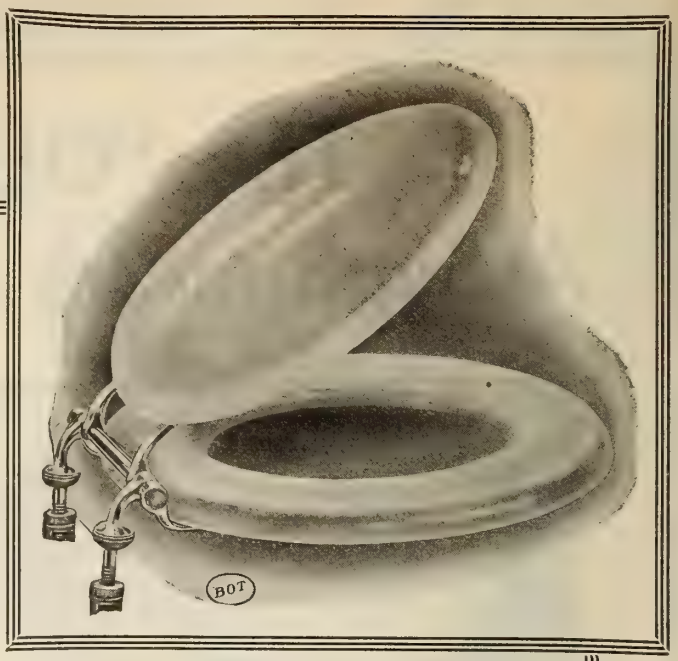
Side Supply
Raised Front Lip
Extended Front Lip
Raised Rear Vent
Integral Seat
Centripetal Action
Donovan Flange
Clean-out Plug
Integral Seat Hinge Bar

as well as almost any combination of these.

CANADIAN POTTERIES
LIMITED

SAINT JOHNS
QUEBEC

Sales handled exclusively through recognized Jobbing houses.



Did You Ever?

Mr. Sanitary Engineer:

Did you ever sell an article that was Perfect? The WORLD'S FINEST CLOSET SEAT and the MOST SANITARY CLOSET SEAT yet produced is the "B.O.T." BLANCO. **IT IS PERFECT**, ask anyone who has installed one.

First made with the regular "B.O.T." DOWELLED SEAT CONSTRUCTION; then covered with a heavy coating of "B.O.T." SHEET BLANCO, which leaves NO SEAMS; lastly finished on a BUFFING WHEEL just as metal is polished.

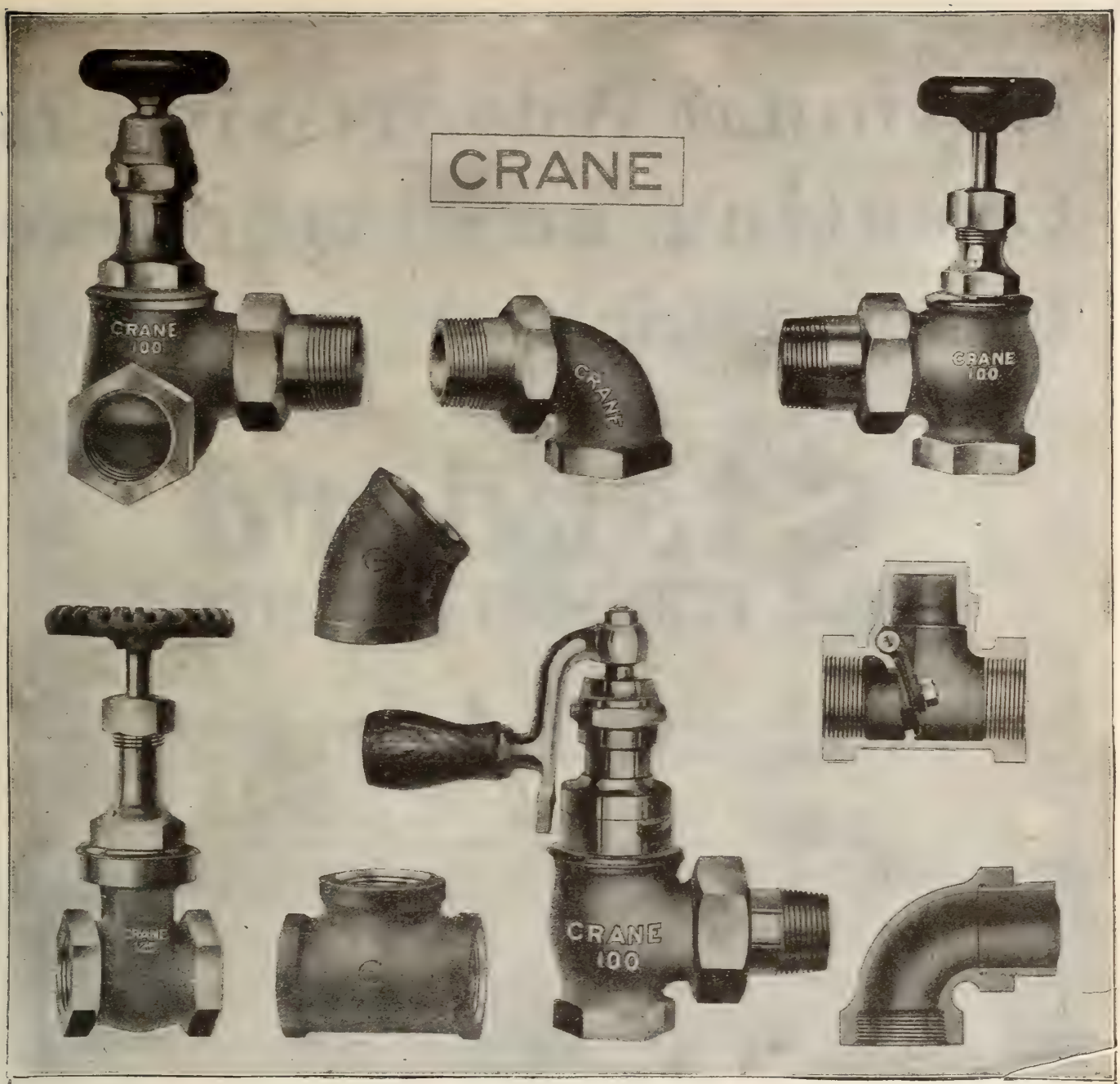
IT IS proof against hot or cold water, WILL NOT CRACK, PEEL or DISCOLOR; is EASILY CLEANED with soap and water, hence is IMPERVIOUS TO DISEASE GERMS.

Your customers are in favor of a WHITE CLOSET OUTFIT, a "B.O.T." BLANCO SEAT adds the finishing touches, or, in other words, MAKES A FIRST-CLASS JOB.

SOLD in all styles. Further information gladly sent on request.

CANADIAN BRASS COMPANY
LIMITED

Galt — Toronto



CRANE VALVES AND FITTINGS FOR HEATING AND VENTILATING

Manufacturers of Valves, Fittings and Piping Equipment and Distributors of Pipe, Plumbing and Heating Supplies.

CRANE
LIMITED
HEAD OFFICE & WORKS
1280 ST PATRICK STREET
MONTREAL

Branches and Warehouses:
HALIFAX, OTTAWA, TORONTO, WINNIPEG, REGINA, CALGARY, HAMILTON, VANCOUVER, LONDON,

Sales Offices:
QUEBEC, SHERBROOKE, ST. JOHN, VICTORIA.

CRANE-BENNETT
Limited
Head Office and Warehouse:
LONDON, ENGLAND.

Sales Offices:
MANCHESTER, BIRMINGHAM, LEEDS, GLASGOW.

12

National Advertising is Creating an Extensive Demand for

"Standard" PLUMBING FIXTURES

Make sure that you get the contract for profitable plumbing work in your district by advertising STANDARD PLUMBING FIXTURES.

By consumer advertising in some of the leading National magazines, we are educating the public on the many features possessed by the "STANDARD" line, with the object of getting them to specify "STANDARD" when they are in the market for plumbing fixtures.

So that people may know you handle the "STANDARD" line, we have had prepared a number of attractive window signs which are beautifully lettered in black and gold and which may be easily transferred on your window front. They measure 18″ in width by 5″ in depth.

This sign will be mailed to any Sanitary Engineer free of charge upon receipt of application addressed to our general office.

Standard Sanitary Mfg. Co.
Limited

General Office and Factory: Royce and Lansdowne Aves., Toronto, Ont.

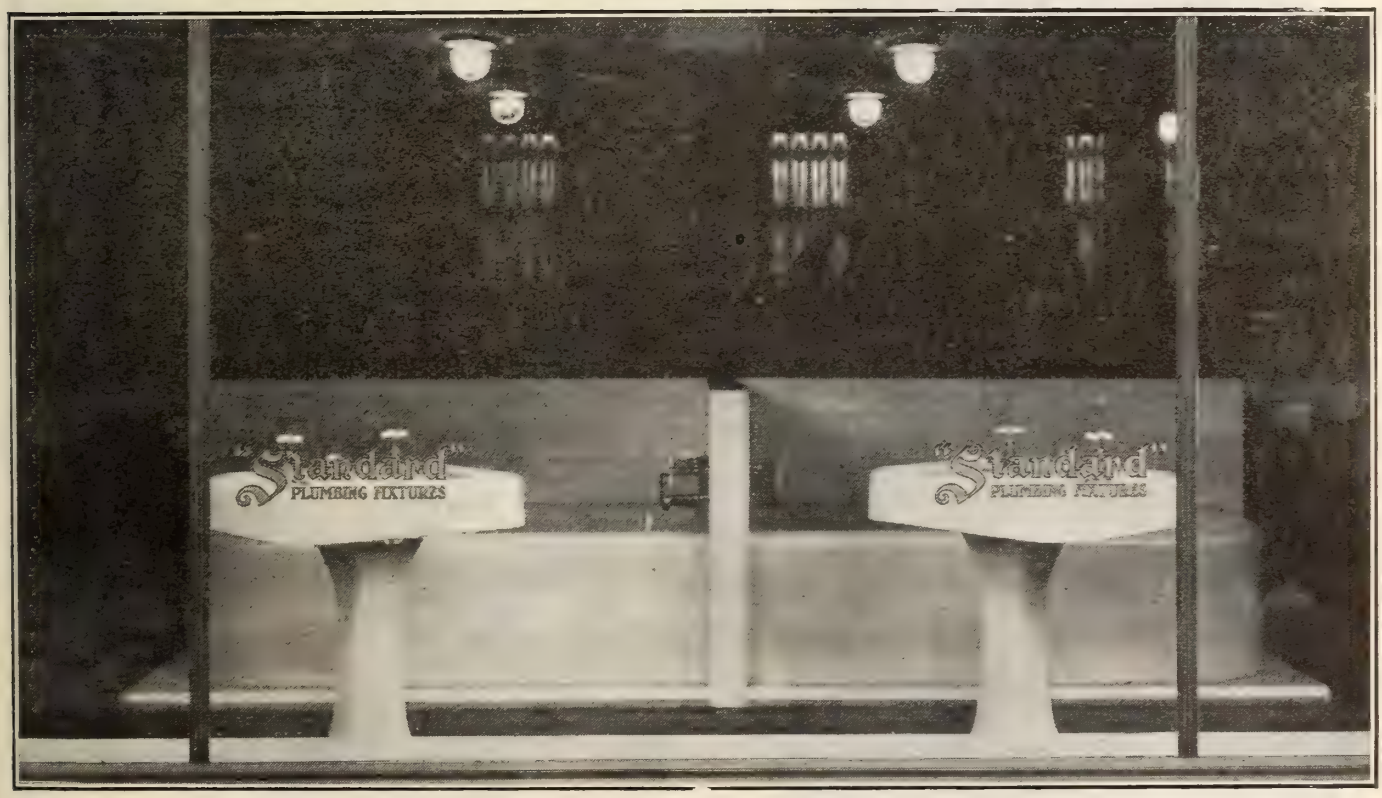
Toronto Store:
55-59 Richmond Street East
Calgary:
325 Eighth Avenue West

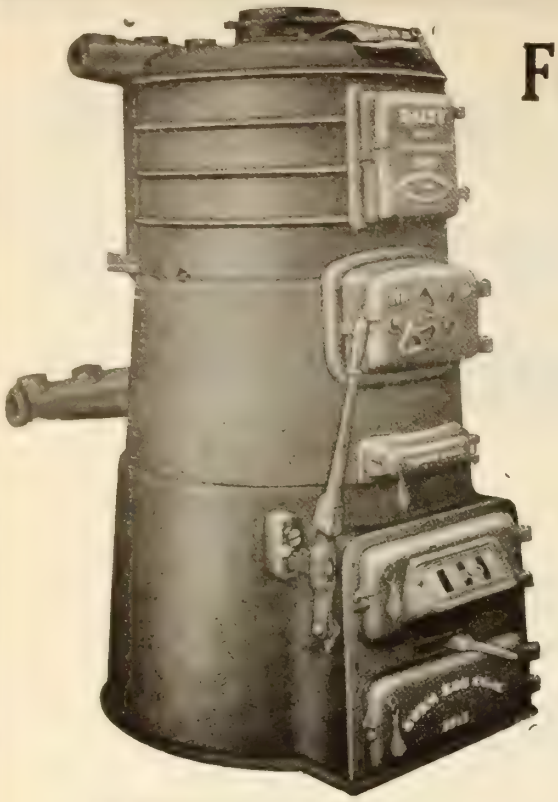
Winnipeg Showrooms:
76 Lombard Street
Hamilton Store:
26-28 Jackson Street West

Montreal:
New Birks Bldg.
Vancouver:
860 Cambie Street

"Made in Canada"

—so let your Customers know you handle them by displaying this sign





First in Householders' Hearts

DAISY

Hot Water Boilers

Apparently small things convince people, sometimes. Recently, the owner of a Daisy made a very convincing talking point out of the way he could "sleep in" in the mornings, when the "Daisy" was on the job. It was only another way of saying how little attention Daisy Hot Water Boilers require and how easy they are to attend. Besides, they are economical and efficient.

WARDEN KING, Limited, Montreal

Branch Office: 136 Simcoe St., Toronto

VULCAN

Pure Air Furnaces

The greater radiating surface on the Vulcan makes them more effective. They are economical, simple and easy to operate, and very profitable for you to install. Built of heavy metal, they are very durable in use.

Vulcan Pure Air Furnaces are satisfactory in service, economy of fuel, comfort in the home and ease of operation. We can prove this; write and ask us to.

The Vulcan Co., Limited

London - Canada

SANITARY ENGINEER
PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907 PUBLISHED TWICE MONTHLY

Vol. XVI. PUBLICATION OFFICE, TORONTO, FEBRUARY 15, 1922 No. 3

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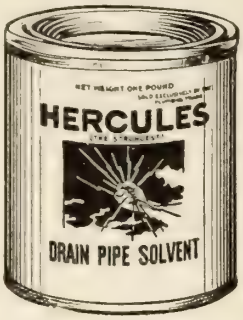
FROZEN DRAINS
and
CLOGGED WASTES
are opened like magic with

Non Explosive



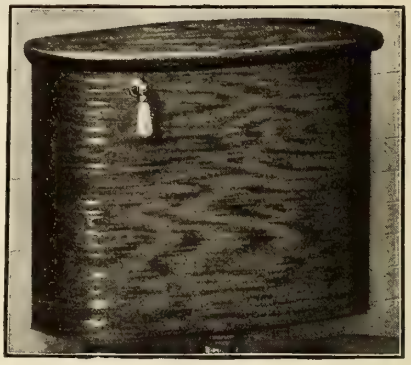
No Fumes

"Hercules" is the most powerful drain pipe solvent made and has the great advantage of being odorless. Write for sample order and direction sheet.

We are distributors for Canada for "Hercules," "Sanitas" and "Porcella." Most jobbers handle these lines. If yours cannot supply you, order from us.

W. H. Cunningham & Hill Ltd.
269 West Richmond St., Toronto

TEN THOUSAND
"PUSSYFOOT" TANKS
SOLD 1921



Beauty, Style, Refinement, combined with the "PUSSYFOOT," valve, simplicity makes a Silent, Efficient, Durable, Closet Tank.

ALL JOBBERS

THE CANADA METAL CO., LIMITED
TORONTO

MORRISON
Plumbing Goods

Morrison Brass Goods are a standard in Canadian work. It comes natural to specify "JMT" and it becomes profitable also. Sanitary Engineers who specify these reliable goods have no "kicks" and "come-backs." The satisfaction of your clients brings you more and more business when they need work again.

We Stock:

Iron Pipe,
Lead Pipe,
Cast Iron Soil Pipe & Fittings,
Brass Tube ⅛ to 10-inch O. D.
Brass Pipe,—Iron Pipe Sizes,
Copper Pipe—Iron Pipe Sizes,
Brass Rod—Round and Hexagon.
Copper Rod,
Sheet Brass,
Brass Wire,
Brass & Copper Pipe,
Iron Pipe Fittings,
Brass Pipe Fittings,
Pipe Fitters' Tools,
Stocks & Dies,
Pipe Wrenches,
Pipe Cutters,
Pipe Vises,
Etc., Etc.

James Morrison Brass Mfg. Co.
LIMITED
93-97 Adelaide St. W., Toronto

Established 1907

Circulates Throughout Canada

Sanitary Engineer
Plumber and Steamfitter of Canada

Published First and Fifteenth of Month

Vol. XVI. TORONTO, FEBRUARY 15, 1922 No. 4

"Aggressive Merchandising Policy and Well Appointed Showroom Plumber's Best Guarantee"

So Says Ontario Manufacturer of Plumbing and Heating Equipment in Dealing With Master Plumber's Complaints of Lack of Protection—Says Every Plumber Should Have A Showroom—Plumber Should be Protected to Reasonable Extent When Material is Sold Direct to Consumer

A NUMBER of angles to the controversy regarding showrooms for plumbers have been brought out in recent issues of Sanitary Engineer, one of the most interesting being that set forth in an interview which appeared in the February 1st issue. This interview with a prominent master plumber of Quebec province indicated that through lack of protection from wholesalers this plumber was faced with the necessity of closing up his showroom after conducting it for a great many years. It had been his experience that within the last two or three years wholesalers had shown an increasing tendency to sell plumbing equipment direct to consumers at or near the price to the plumber so that there was no longer any protection for the latter. This plumber was of the opinion that a great deal of business would be lost to the industry through his not operating a showroom. He was quite in favor of plumbers conducting individual showrooms but contended that wholesalers should give more protection.

Sanitary Engineer has taken steps to put before a number of manufacturers and wholesalers of plumbing and heating equipment, the views expressed by this plumber and following is some information gleaned on the subject from those sources.

Practice is Confined

One Western Ontario manufacturer states:

"We have known in an indirect way that wholesalers have on occasions adopted the practice of soliciting orders for plumbing fixtures and fittings direct from the consumer, a practice which has been confined, we feel sure, to the wholesaler but which the manufacturer has not adopted. While our advertising policy and appropriation has been largely directed to the plumbing trade and wholesale distributors, we have appealed to consumers by direct correspondence but in every case where specialties have been offered to the consumer prices have been arranged to provide adequate protection for the plumber. The contracting plumber in Quebec City referred to in your letter of the 2nd has, however, overlooked a very important fact that the prices from the wholesaler to the consumer cover the material only; that the consumer would be forced to secure an installation price from the master plumber except in very rare cases where the material purchased is of such a nature that it could be installed by the consumer.

The Best Guarantee

"More aggressive merchandising policies supplemented by a well appointed showroom are the contracting plumber's best guarantee and assurance that he will receive the preference over quotations for material only furnished by wholesale distributors."

A Central Ontario manufacturer states:

"Having reference to plumbers maintaining a showroom for the purpose of showing their goods, and the expense attached thereto in view of the fact that many jobbers maintain a show-room and sell direct to the general public, we would point out that this is a matter which is not universal. In some cities the jobber sells direct to the public and in other places he does not. In any event, we have always understood that a jobbing house selling a bath or anything connected with plumbing material, protects the plumber who is installing it to a reasonable extent.

Plumbers Should Have Showroom

"It is our candid opinion that the plumbers ought to maintain a showroom themselves. It is not often that the general public go to a wholesale house for the purpose of selecting their goods. It may be that those who want a better class of goods than the ordinary line of goods, would go to a jobbing house where they could have a larger selection than they can have from the ordinary plumber. In any event, we think it is to the interest of the plumber for him to maintain a showroom—perhaps not too elaborate, but one which will display the ordinary goods which are generally used.

"We would rather not be drawn into a discussion of this kind, but it is our candid opinion that every plumber ought to have a showroom at his place of business."

Keen interest has been displayed in this vital question and expressions of opinion have been forthcoming from practically every phase of the sanitary and heating industry. The entire facts of the case, together with the various angles which different viewpoints have accentuated, have provided one of the feature topics in recent issues of Sanitary Engineer. Not only has this topic appealed very strongly to the trade in general—including plumbers, wholesalers and manufacturers—but the importance of the underlying elements has contributed towards molding the future policy of this branch of the industry, as well as forming an important part in trade expansion and general improvement. Opportunities for further discussion will be provided through the medium of these columns, providing that additional points of interest and new developments are forthcoming.

Plumbers Want Revision of Sales Tax

Many Important Problems to be Dealt With at Coming Session of Parliament to Open March 8—Suggestions for Sales Tax Revision

SEVERAL matters of vital importance to the plumbing trade will be dealt with at the forthcoming session of Parliament which opens in Ottawa on March 8. Already there is much speculation concerning the attitude of the new party which has been elected, toward certain legislation enacted by the late government. One of the matters in which the trade is particularly interested is in connection with the sales tax, for while this form of taxation has been looked upon as a model by many business men in this country and abroad, it has been found that it operates unfairly in certain respects and numerous representations have recently been made for a change in the method of application. Some of these recommendations have been outlined in recent issues of Sanitary Engineer.

As a rule the present Act assesses a sales tax of 1½ per cent. on sales by manufacturers to wholesalers, another 1½ per cent. on sales by wholesalers, and a straight 3 per cent. tax on sales by manufacturers to retailers and consumers. On importations by retailers or consumers the sales tax payable at the customs house is 4 per cent., and on other importations it is 2½ per cent.

Suggested Changes

One suggestion which has been made is briefly, as follows:

That sales by manufacturers to wholesalers for resale by the latter, and sales by wholesalers to other wholesalers for resale be exempt from sales tax:

That sales by manufacturers and wholesalers to retailers or consumers be subject to sales tax at the rate of 3 per cent.:

That it be compulsory to extend such sales tax on the invoice as a separate charge to be added separately to the selling price—without the manufacturer or wholesaler being allowed to absorb any part of the tax.

The proposal, as it reached the Canadian Manufacturers' Association, includes no suggestion of change in the present sales tax requirement "that domestic purchases by manufacturers for the purpose of re-manufacturing into other goods for sale are subject to 1½ per cent. sales tax," nor in the present requirement "that importations by manufacturers for the purpose of re-manufacturing into other goods for sale, and also importations by wholesalers, shall be subject to 2½ per cent. sales tax, payable at the custom house."

If the Act were amended in accordance with the above suggestion, it is claimed by those advocating the changes that it would:

1. Eliminate the necessity of a manufacturer charging sales tax where his sales are exclusively to wholesalers holding a sales tax license as a wholesaler:

2. Do away with the present situation, with which all wholesalers and many manufacturers are faced, of absorbing half of the sales tax when selling direct to retailers or consumers:

3. By exempting from tax purchases made by wholesalers or jobbers from manufacturers do away with the agitation of the wholesalers that the manufacturers, do away with the agient sales tax of 1½ per cent. on sales by manufacturers to wholesalers.

4. Reduce the possibilities of loss in the event of wholesalers becoming insolvent:

Under the current rulings where a wholesale customer becomes insolvent, and a manufacturer has paid the Government the sales tax in respect of goods sold to such customer, but has not received payment of the tax from the customer, the loss falls upon the manufacturer:

5. Simplify the collection of the tax.

SUGGESTIONS ON SALES TAX REVISION

1—Manufacturers' sales to wholesalers for resale be exempt.
Wholesalers' sales to other wholesalers for resale be exempt.
Manufacturers' and wholesalers' sales to retailers or consumers subject to 3% tax.
To extend sales tax on invoice as separate charge added separately to selling price. Manufacturer or wholesaler not allowed to absorb any part of tax.
2—Retailer suggests manufacturers collect all sales tax and include it in cost of goods rather than as separate item.
3—Only about 25% of present tax passed on to consumer says another retailer, suggesting manufacturers and wholesalers include it in prices shown on invoice.
4—Margin of profit on certain fixed price lines too small for retailer to bear cost of sales tax.

TINSMITHS' CASE TO THE SUPREME COURT

The controversy over the status of the tinsmith for taxation purposes has been very much drawn out and the various stages have been dealt with in Sanitary Engineer. It will be recalled that a test case instituted at Ottawa in the case of a merchant tailor to determine whether any merchant doing business on the same basis could legally be classed as a manufacturer, was decided in favor of the retailers and no trouble was anticipated. It developed, however, that this ruling was not being upheld by the Collectors of Inland Revenue and a subsequent case involving a confectioner was tried. This case was decided in favor of the Government, and the case is now to be taken by the Retail Merchants Association to the Supreme Court, as mentioned in the Feb. 1 issue of S nitary Engineer. This case will be in the form of an appeal from the last court decision. The case is being followed closely by retailers who operate tinsmith shops and the decision will be one of great importance to the trade.

PLUMBER IS HIGHLY HONORED

Toronto.—James Richards, late president of local 46, plumbers' and steamfitters' union, was made an honorary life member recently of the union and presented with a gold watch. He is the only honorary member of the international union, and one of the few in organized labor who have been so honored.

PORT CREDIT WATERWORKS

Port Credit, Ont., will endeavor to break the deadlock over the waterworks problem by direct action. The special meeting to deal with the problem, it is authoritatively stated, will formulate a plan for a new waterworks area to include Port Credit, Cooksville, Streetsville and the Township of Toronto. Reeve Patterson and his colleagues in the municipal council will ask the Provincial authorities to apply Mayor Dallyn's plans for a lake shore waterworks to the southwest of York Township, Mimico, New Toronto, Long Branch and Etobicoke Township.

Heating and Ventilating

Investigation of Warm Air Furnaces

Extensive Investigation Conducted by National Warm Air-Heating and Ventilation Association, and University of Illinois Reveals Many Interesting Points Concerning Capacity And Efficiency of Various Heating Systems

Second Article of Series Reproduced in Sanitary Engineer by special permission Engineering Experimental Station, University of Illinois

KNOWING the B.t.u. loss per hour from any room on any floor (first, second, or third and given any register temperature, using the value of B.t.u. per square inch of leader pipe from these curves (Fig. 8), simple division will give the square inches of leader pipe necessary to heat the room to 70 deg. F. on a zero day.

From the data obtained in the seven tests it was apparent that the temperature at the registers on the second floor was approximately 10 degrees lower than that on the first floor, or about 175 deg. F. In like manner, from the second floor curve, it was found that one square inch of leader pipe at this temperature will supply 160 B.t.u. per hour available for heating rooms. Dividing the heat loss from the second floor rooms by this value gives the square inches of leader pipe necessary to offset the heat loss from the second floor rooms.

In the same way, the test data show a register temperature on the third floor which is about the same as that on the first floor. From the third floor curve it may be seen that at 185 deg. F. register temperature one square inch of leader pipe will carry 215 B.t.u. per hour. The square inches of leader pipe for third floor rooms are found as before.

In plotting the curves the average register temperature for any one floor was used in each case. It was found by reference to the test data that there was a considerable variation in register temperatures on any one floor. It is, therefore, evident that the size of the pipe as figured may not be absolutely correct in each case. It is not much in error, however, and in view of the large increase in pipe areas from one size to the next, the error is negligible for all practical purposes.

It is quite evident that the design of a furnace heating system must be based on the B.t.u. loss per hour from each room. This method of computation is quite familiar to the engineer and can be used by any well qualified furnace man, as fairly simple formulas can be made to cover most types of installation. A later bulletin will cover such applications, and, therefore, no space is given to the calculation of heat losses here.

If, for example, it is found that the room on the first floor of a house has a heat loss of 16,600 B.t.u. per hour, and a register temperature of 185 deg. F. is to be used, each square inch of leader supplies 115 B.t.u. and the calculated area becomes

$$\frac{16{,}600}{115} = 144 \text{ square inches}$$

which requires either one 9-inch and one 10-inch leader, or a special 13½-inch leader.

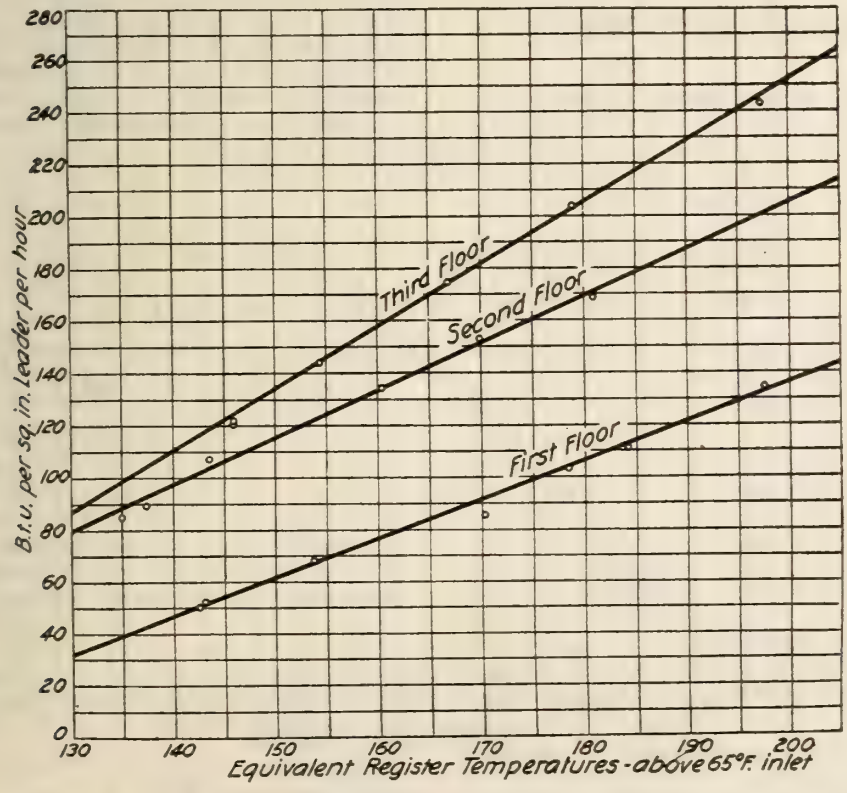


FIG. 8. EFFECT OF AIR TEMPERATURE AT REGISTER ON LEADER CAPACITIES

THE PIPELESS FURNACE PLANT

General Description of Plant

The plant and the arrangement of equipment for the testing of the pipeless or single register furnace is shown in the sectional elevation Fig. 11. In brief, the plant consisted of a frame structure eight feet in height supporting a platform ten feet square. This platform served as a floor in which was inserted the register, and below this was erected the furnace proper. The main floor of the laboratory was used as the firing floor, and the platform above as the reading or working floor. The chimney was located three feet to the rear of the furnace, and was of 12-inch galvanized-iron pipe 35 feet in height.

The furnace used in these tests was

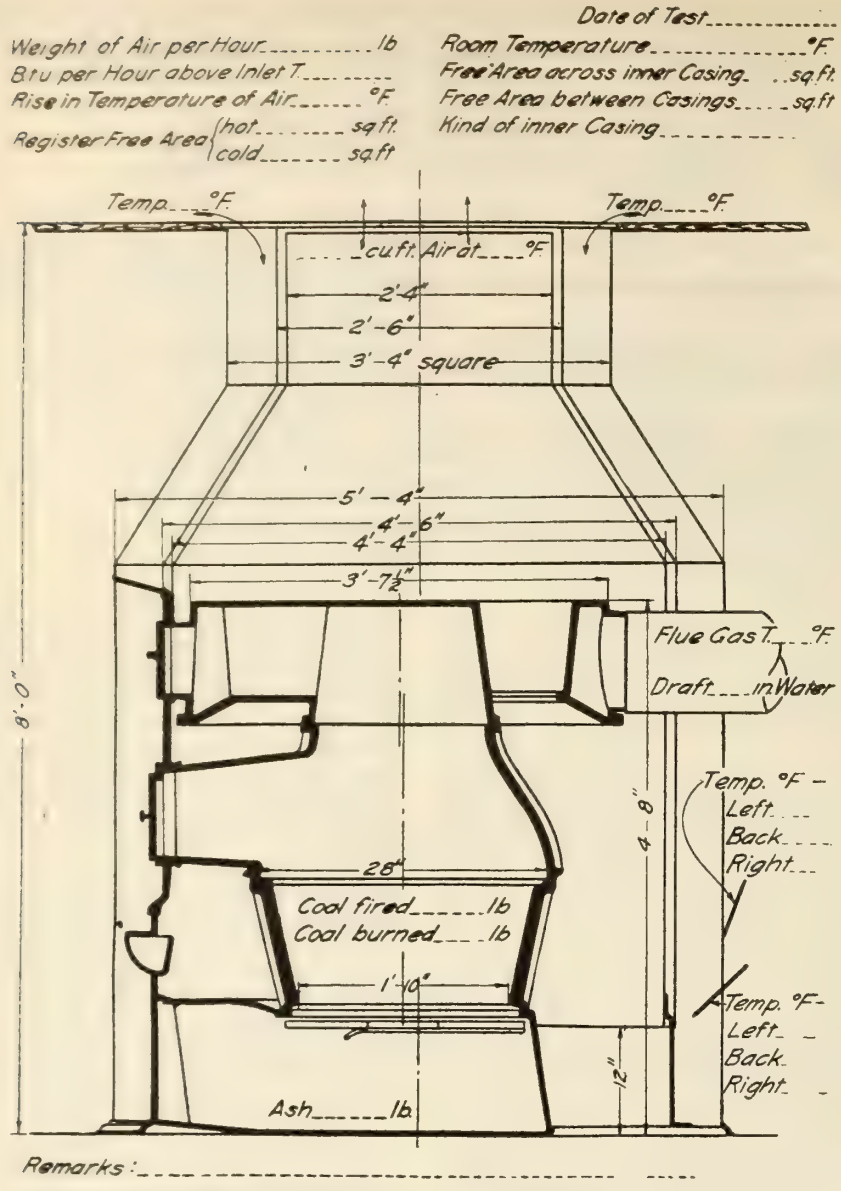


FIG. 10 SECTIONAL ELEVATION AND DATA SHEET OF PIPELESS FURNACE

representative of the plain cast-iron horseshoe radiator type, without special radiating surfaces, corrugations, or any special devices for increasing either efficiency or capacity of operation. The fire pot supplied with the furnace was of the slotted type, but fire clay fillers were used to close the slots.

The following equipment was used in the tests of the furnace: coal and ash weighing and sampling equipment, air measuring devices and calibrating equipment for same, temperature measurement equipment, temperature and draft controlling equipment, draft indicating and recording gauges, carbon dioxide indicating and recording apparatus, and a Wahlen gauge.

The air measuring equipment is shown in the sectional elevations, Figs. 10 and 11. This apparatus consists of an anemometer with its special register traversing carriage, a cold-air register cover plate with felt gasket and clamping screws, an air supply pipe and damper, shown entering the side of the casing near the floor, a motor-driven blower and speed regulating rheostat, a 10-1/32 inch air measuring pipe with its vertical Pitot tube and piezometer ring and thermometer, and the Wahlen gauge. The blower was used to supply a definite amount of air, which was measured by means of the Pitot tube and the Wahlen gauge, and this air was then delivered to the furnace and out through the warm-air register. At the register, the anemometer was used to traverse the area and so determine the mean velocity of the air passing the register grille. The speed control of the blower motor made it possible to reproduce any desired velocity of outflow, and a calibration of the anemometer was made for any given register temperature. Such a calibration curve is reproduced in Fig. 13. This method of calibrating the anemometer was particularly advantageous because it was done exactly under the same conditions as existed during a test of the furnace.

The temperature measuring equipment consisted of thermocouples for reading temperatures at points where radiation of heat from the furnace rendered the use of thermometers inaccurate. Thermometers were used at such external positions as were not affected by radiation.

The air temperature controlling mechanism which operated the draft dampers is described in section V of this bulletin. Successful operation of this device was absolutely necessary in all furnace tests, for upon proper draft control depends the rate of fuel combustion, which affects outlet air temperature, capacity, efficiency, and all other characteristics of operation of the furnace. The device used consisted of a special thermostatic element and mechanism used in conjunction with an electric motor for operation of the air supply damper and the butterfly damper in the smoke pipe of the furnace. Details of the device, described in Section V, are shown later. The importance of maintaining consist-

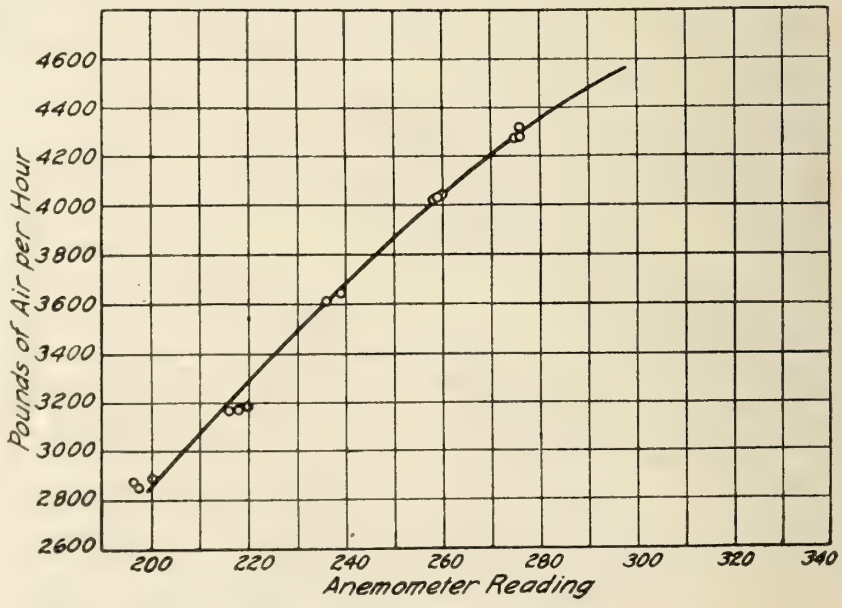


FIG. 13. TYPICAL ANEMOMETER CALIBRATION CURVE

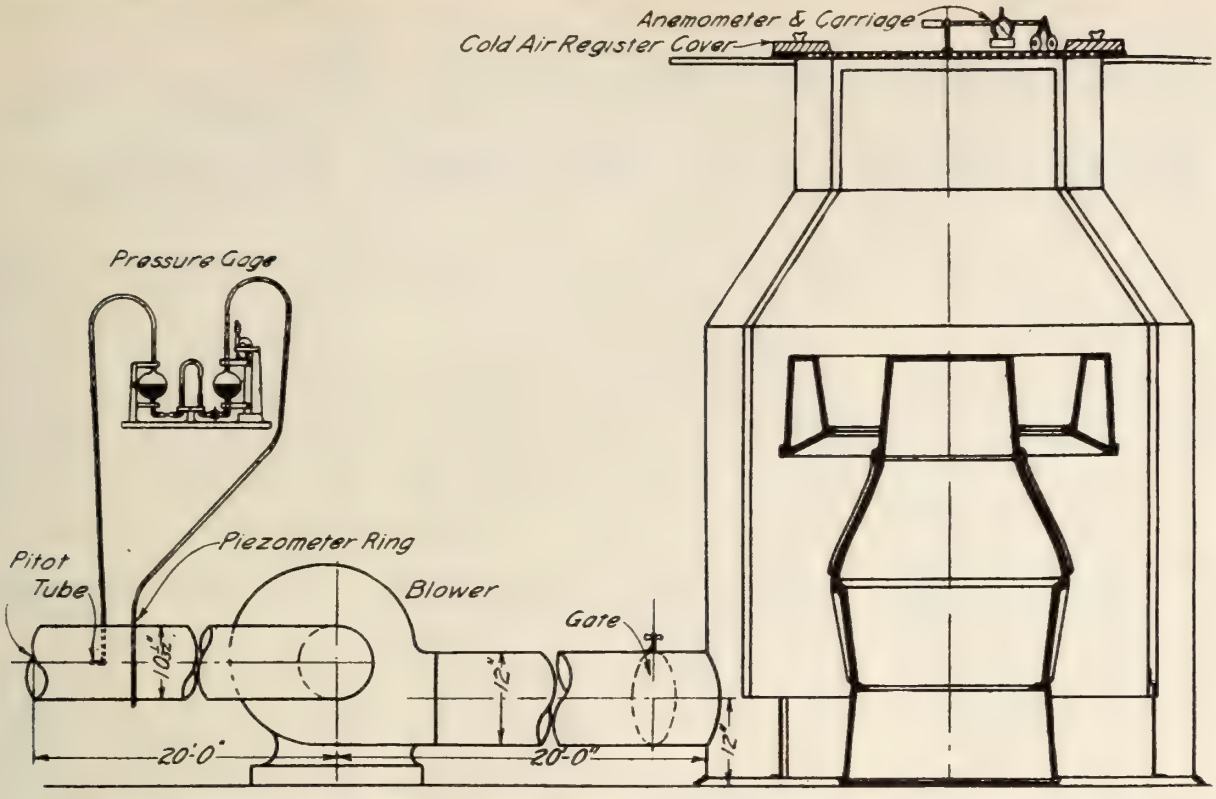


FIG. 11. SECTIONAL ELEVATION OF PIPELESS FURNACE, WITH ANEMOMETER CALIBRATING EQUIPMENT

ent conditions in furnace testing cannot be over emphasized, and a uniform combustion rate is absolutely essential. Since draft is the controlling factor in combustion rate it was found desirable to keep a continuous record of the operation of the draft dampers. The draft recorder drew automatically a chart which showed how uniform were the periods of operation of the dampers. The draft tube entered the smoke pipe at a point six inches outside the furnace casing. The draft was controlled by a butterfly damper in the smoke pipe, and the ash pit damper. The check damper in the smoke pipe was sealed to prevent any leakage of air into the pipe with consequent errors in the CO^2 reading. For CO^2 determinations a recording meter was used.

In the conduct of a test on the pipeless plant the services of two men were required, except in calibrating the anemometer, when three were necessary.

(To be Continued)

Solving Plumbers' Accounting Problems

Some Plumbers Take A Great Deal Of Work On Which There Is No Profit Because They Have Not A Proper System of Administration—A Successful Master Plumber Outlines Reasons For His Success

Written for Sanitary Engineer by C. D. HENDERSON, President Henderson Business Service, Ltd., Brantford, Ont.

ASK ANY sanitary engineer what he is in business for and he will answer "To make a profit" and yet day after day he sells goods and takes contracts on which he knows down in his heart there is no possibility of deriving a profit.

Ask him why he does this and he will likely say that he can not obtain a fair price in competition—or in other words—he admits that he is guided by his competitor rather than by his own good judgment.

This is a regrettable condition of affairs that exists in few other lines of business and which is responsible for the fact that few sanitary engineers are making any headway, commensurate with the care and hard work necessary.

Readers of this article will say it is all very well to criticize but what we want is a solution out of the difficulty. The writer is not posing as a "Business Moses" who will lead our trade out of the wilderness, but I do know there are some sanitary engineers in Canada who are the exception to the rule and a study of their business methods might help others who are less successful.

A Case in Point

Without mentioning any names, I will take for example a concern in Ontario whose progress I have watched for ten years. In 1912 this firm occupied a small but neat inviting shop in a medium sized city and both parties were well and favorably known in the district, one of them a practical man and the other of good business ability with a fair knowledge of the Plumbing and Heating business. Competition in this city was and still is exceedingly keen, in fact the casual observer might have said that the business was overpopulated. But these two men had vision—they knew that there would be abundance of work to do and believed that the majority of people were willing to pay a reasonable price for quality and service. Unlike their competitors, they did not have the idea that price was always the dominant feature of a sale, in fact, their plan was to work up a clientele of a good class of customers and create new business rather than pitch into the hurly-burly of cut throat competition.

Now, as to their progress to date—They have not installed all the big jobs

(Continued on page 15)

Questions and Answers Regarding Plumbing and Heating Practice

Question

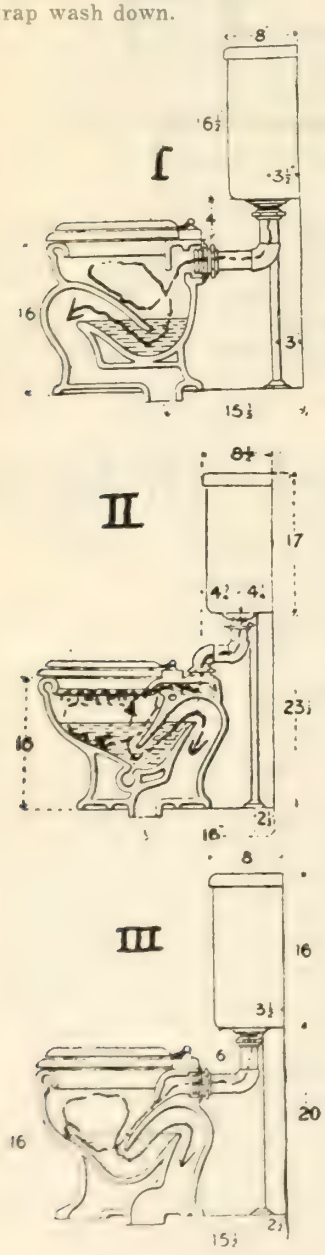
The Editor, Sanitary Engineer.

I am an interested reader of your magazine, and wish you would kindly explain, and demonstrate by sketch, the action of water subsequent to leaving the tanks of the wash down, siphon jet and siphon action closets.

AN APPRENTICE.

Answer

The following three sketches will demonstrate the action of water subsequent to leaving the tanks of the 1. wash down, 2. siphon jet and 3. reversible trap wash down.



RE FUEL CONSUMPTION

The Editor, Sanitary Engineer.

Would you kindly give an estimate of the amount of fuel per day for a theatre containing 1,314 feet of radiation and a Gurney boiler capacity 2,500 feet No. 945s. The walls are of solid brick with air space and plastered on the brick inside. There is a suite and two stores in the front of building. Temperature required in auditorium, about 65°, temperature outside anywhere from freezing to 35 below. The owners claim they have an excessive fuel bill. They are burning Drumheller coal (lump). Thanking you for your trouble.

(Signed)—ROBT. LUMO,
Dauphin, Man.

Answer.—The amount of fuel required to keep a building at a uniform temperature day and night may be estimated on the basis of 3½ tons of hard coal or 2½ ton of hard coal for every hundred square foot of direct steam radiator surface during a heating season of 180 days. In a theatre building the heating surface required is something different to that for the ordinary type of building. An allowance must be made for intermittent service, and this varies with the type of theatre where such radiation may be installed. A building requiring heat at night only requires 30% more heating surface than one that is to be heated every hour of the twenty-four. Now, if the radiation surface in this building has been figured on this basis of a 30% margin, we may consider that the heating surface is equivalent to 1,000 square feet of direct surface, and that 35 tons of soft coal will be required for the heating season.

If the radiation has been figured so that no allowance has been made for the intermittent service we must base our estimate on the entire radiating surface installed, thus allowing 46 tons of soft coal. From this we can deduct about 1-3 to allow for the eight hours when the fire may be allowed to run on a checked draft.

Therefore, we may say that between 30 and 35 tons of soft coal will be a safe estimate of the amount of fuel required for an average winter season of 180 days.

* * * *

SEWAGE DISPOSAL

Question

The Editor, Sanitary Engineer.

Having passed over your sewage disposal and waterworks talk, I thought you could be of great help to me in regard to a waterworks which I am about to repair. What would be your idea of an underground intake? The reservoir is situated between two hills and we have springs coming from both sides. Would it be better to build a dam and syphon the water into the reservoir? If I had an underground intake, would the quicksand interfere with it? I was told that the sand would pack around the pipes and within a short time stop them from absorbing water.

(Signed) H. FREDETTE, Plumber,
Plantagenet, Ont.

Answer

In answer to your inquiry re waterworks, whilst your letter is not very clear we presume the information you are seeking has reference to the best method of collecting the water from the various springs on the hillsides adjacent to yuor reservoir, which, we take it, is in the valley.

Firstly: If all the outlets of the springs come to the surface above the elevation of the reservoir and can be collected into one jointed pipe main laid direct into the reservoir, this appears to be the easiest solution of gathering the water, provided of course, that same is fit for drinking purposes and not contaminated.

Secondly: If the collecting ground is saturated with water and it is only possible to gather the supply by under drainage with open jointed field drain pipes into one main pipe leading to the reservoir, then from the description of the ground through which the branches and main will travel there will always be a chance of vegetable growth and silt finding its way into and around the open pipe joints along the pipe line and same cannot be entirely prevented. But a certain amount of growth and silt can be prevented reaching the pipe by using an open jointed spigot and socket pipe and surrounding same with large broken stones, etc., so as to create a space for the silt to collect in, and at the same time arrest the growth of all vegetable roots around same, but eventually if there is a great amount of sand to be dealt with, this will in the course of time become siltered up and consequently the pipe joint blocked.

Thirdly: Before advising the best construction method of connecting up the reservoir from the collection area, we would have to be furnished with a sketch plan and profile showing the distances and general location of the reservoir, the springs and the grades and also some data regarding the collection ground with reference to the soil and the quantity of water available.

From the general opinion gathered from the letter we would think that if the levels permit of an earthern dam being constructed at little cost and the under drainage system proposed is adopted, the scheme would be more efficient, and consequently more economical, if the dam was constructed and designed to act both as a storage and settling basin. In that case ample provision should be made for permitting same being easily cleansed.

If you feed directly into the reservoir from your underdrains the silt or sand will find its way through the pipes into the reservoir and eventually get into your mains, damaging the service valves as well as discoloring the water. It would then be advisable to divide your reservoir into two compartments and have your intake in one and your outlet in the other, trapping the inlet and outlet pipe by means of a baffle wall, so that the silt will settle in your first compartment and the clear water will pass over the baffle wall into your mains. If this arrangement is carried out in designing the tank, ample provision must be made for the simple cleansing operation of the first compartment.

As regards the size and general details of the tank (or dam if constructed) no data are given to permit us giving any approximate sketch, so same cannot be dealt with in this reply but the second compartment of the reservoir should be of sufficient size as to hold ample water supply for the needs of the community during the cleansing operation and also some by-pass system should be installed for diverting the water from one compartment to the other during same.

Asbestos Industry Tax Under Discussion

Quebec Legislature Reviews Taxation on Asbestos Products—Domestic Producers Claim Handicap By Reason of Tariff Situation

MONTREAL.—The question of the royalty on asbestos production at the mines, and a reduction of tax on all products manufactured in the province, was recently discussed in the Quebec Legislature in the hope of relieving the present quiet state in this industry. It was argued that the question of asbestos production should occupy the serious attention of the Government, not only because it was one of the province's richest natural resources, but because of its relation to the tariff situation. In this connection, it was pointed out that asbestos used in world commerce comes from the province of Quebec, and is exported to the United States without any appreciable duty on it, whilst the United States Government through the Fordney Act, was putting additional duties on Canadian made goods crossing the border.

The Minister of Mines, however, pointed out that the tax that was at present being imposed on the asbestos production of the province was 3 per cent. and the Government had, in order to encourage the manufacture in the province, reduced this tax to 2 per cent. on all asbestos manufactured within the limits of Quebec. The tax had been fixed by Order in Council. First it had been on the profits made by the asbestos companies but the owners had objected to this, particularly during the war period when asbestos was selling at a high price. Consequently the tax was changed to 2 per cent. on the net value of the product. However, the business increased very rapidly from about $5.000,000 to $14,800,000 and in 1920 the tax was raised to 3½ per cent. in 1918 and in 1920 it was raised to [illegible] per cent. Production was carried on to such a large extent, however, that the market had been flooded and all the companies had large stocks in their sheds for which there was no market at the end of 1920.

The Government, however, had no wish to interfere with any industry and had reduced the tax on asbestos for export purposes from 5 to 3 per cent. for the first four months of last year, and 2 per cent. on asbestos manufactured within the Province.

SOLVING ACCOUNTING PROBLEMS.

(Continued from page 13)

in their district which seems to be a proud distinction that many of our sanitary engineers are striving for, but they have had a very nice share of the business in the community and to-day as a result of their high aim and good business principles, their financial standing is a credit to the trade. Their showroom is one of the sights of the town and they both own their homes and are yearly laying aside a little sum for the day when they can enjoy a well earned rest.

Some Good Advice

If you were to have a chat with either member of this firm and were to ask their reason for success, I imagine he would say something like this:

"My friend: Success in the plumbing and heating business like any other business, consists in buying goods (or labor) at one price and selling at a higher price. The higher price being ample to cover the cost of operating your business, and a reasonable profit. There is no mystery about it. It is simply a fundamental law of business which no human being can ignore without ending in disaster. For instance: If a job costs $100.00 and my books show that it costs 25% of sales to operate my business, then it is quite apparent that I must add 33-1/3% to this $100.00 to break even and then my profit must go on top of that. So you see how fool-hardy it is to imagine that we can beat the game and by some miracle we may make a profit by adding 15% or 20% to cost.

"You will say that you can't obtain any business if you add 50% or 60% to your cost—very well, if you admit your inferiority as a business man by saying that you are unable to obtain any business without paying for it out of your own pocket—then you had bettter get out of business and work for someone else who can, otherwise you will simply plod along year in and year out, making no more than a bare living.

Other Important Factors

"This to my mind is the most important feature of business success. Of course, there are other things to be considered, such as establishing a name for quality; keeping an accurate accounting system; careful buying; introducing a spirit of salesmanship into your business, all of which spell advancement, financial responsibility and contentment. Now think this over and come in again next week for another chat."

You—Mr. Reader, may say this all sounds nice in theory, but "there ain't no such animal." Well, I'll tell you, you're dead wrong because I know a few of them and if your business is not what it should be and you would like to talk to a fellow engineer who is making good, just drop me a line and I will be glad to arrange an interview for you with one of them.

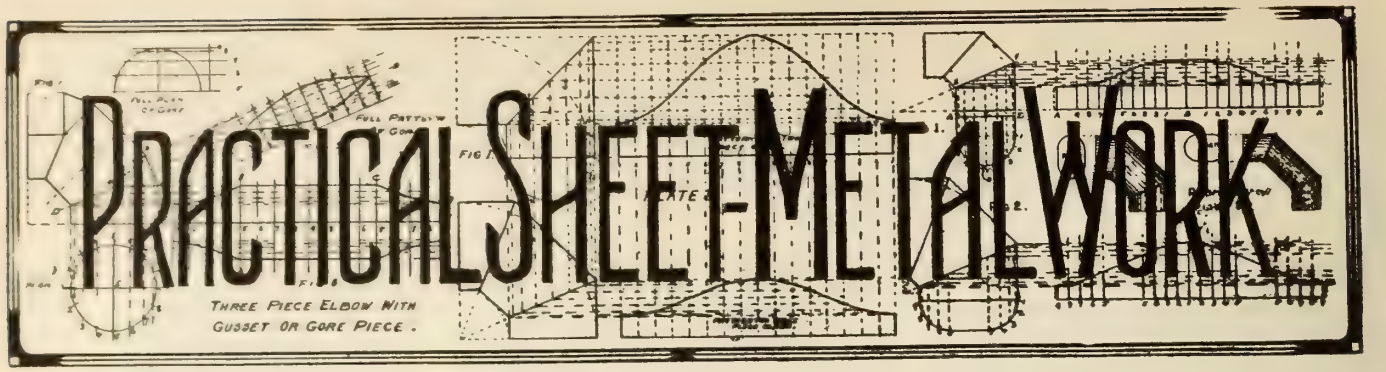
Metal Market Tendencies

COPPER.—Dullness is the most prominent feature of the copper markets. Buying continues of a light nature, with American reports indicating that some export sales have recently been made at concessions. The fact that more copper producers are preparing to resume operations in the near future, has caused the present dullness. Consumers appear to have their needs covered for the first quarter, and a waiting policy is generally being adopted as regards future requirements. The local quotations remain at 17½ cents.

TIN.—The tin market is quiet with little variation in prices. Some easier levels are reported from London, but not of sufficient extent to affect the comparative firmness of the market on this side. Inquiries are not lacking, but actual business is quiet. The local price average is 36 cents.

SPELTER—This market is described as moderately steady with a fair amount of activity. Some awakening of buying interest is looked for, with slight indications of a firmer recovery. Prices of spelter on domestic circles are generally unchanged, the local level being $7.00.

ALUMINUM.—There has been no change in the aluminum market worthy of particular record. Holders, however are not pressing any metal for sale, so that prices generally remain unchanged from previous levels. The local quotation averages 27 cents.



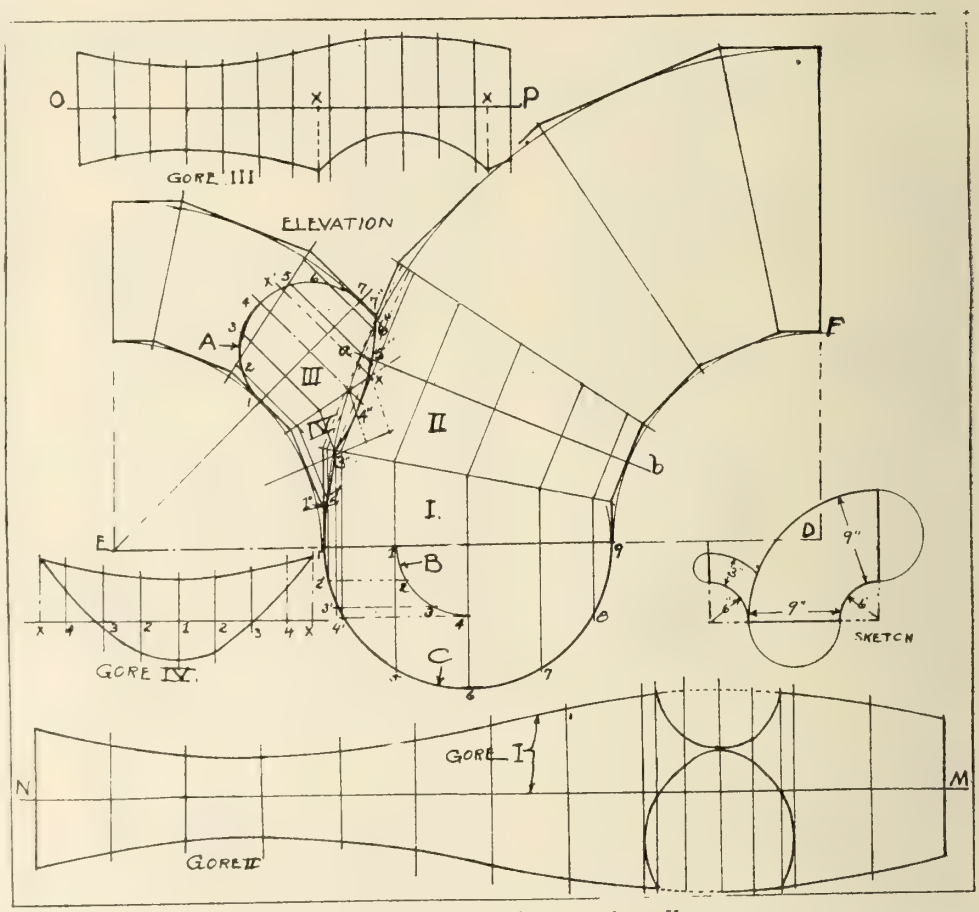
Patterns for Intersecting Elbows

Written for Sanitary Engineer by O. W. KOTHE, Principal St. Louis Technical Institute, St. Louis, Missouri

OUR SKETCH of elbow shown in this drawing was used in connection with a forge piping system with measurements as shown in the sketch. It might have been possible to shift the smaller elbow with an angle to intersect the straight pipe elbow, with a straight tee and that would be saved quite a bit of developing, but such possibilities a person never knows whether they are permissible from the bare drawing.

In this case the large elbow is described first, following the measurements for the throat as D-9, and for the heel as D-1. Then treat the elbow for a 5-piece elbow, or 8 equal spaces in the heel and draw your miter lines as shown. Then describe the small elbow so it is tangent with the heel of the large one as F-1, and adding the diameter. Then treat this also for a 5-piece elbow, making the heel of throat into 8 equal spaces, and draw the miter lines as shown. Through the centre of the gore III draw the line F-7 and from its center describe the half section A and divide in equal spaces. From here draw the lines parallel with the heel to intersect the miter line between gores III and IV, and then from this 4th gore extend them as shown.

Next describe the half section C and reproduce the half section A and set a quarter of it as B, with all its points and from here project them to intersect the large section as in points 1-2-3-4. The balance of C divide in equal parts and square up lines thereby producing elevation lines. Now where these lines intersect those lines from A you establish the miter line as shown. Observe that the miter between gore III and IV crosses the developed miter in point X. This will be the high point as a start and finish for the gore IV. So this completes the working drawing from which the patterns may be laid out.



Patterns for intersecting elbows.

To set out the pattern for the large elbow, we pick the girth from the section C and set it off on a line M-N. Draw straightout lines and then pick each line from gore L of elevation and set on the top and on the bottom side M-N the same as you would develop any elbow pattern. Only in this case the upper half of pattern will represent the gore I and they both together will represent the gore II. All the other gores can be laid off from this pattern. If the opening in the large elbow is desired then from the line a-b pick those distances to points 7-6-5 x 4-3 and set them off on the proper line working in each case from the center of the line M-N. This will give the outline for the large opening shown. In the same pattern we set off the opening as required for the heel of gore I by picking the lines from base 1-9 to 1-2-3 and setting them off on similar lines working from the center line M-N. In this way we lay off both patterns for openings in the one girth and they can be transferred in the other gores cut out of metal by simply quick punching through the lines thus established.

To set out the pattern for gores III and IV of the small elbow, they are set

(Continued on page 22)

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights —Keep the Entire Series Where It May Be Referred To And Studied

Article No. 48 of Series; Illustration 58-59.

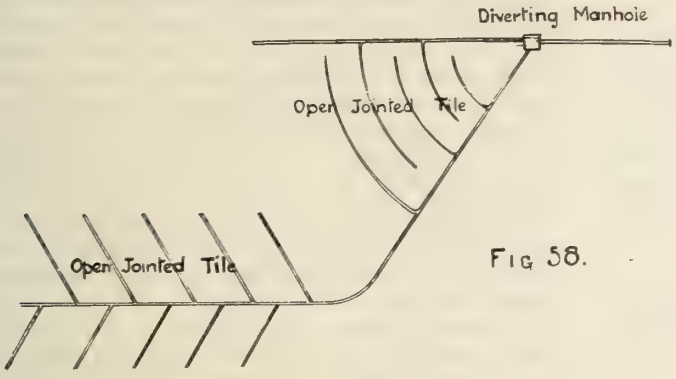


FIG 58.

FIGURE 58 illustrates another system of arranging the tile drains which will produce good results providing the tiles are laid correctly.

Fig. 59 shows the layout of a complete private installation, utilizing unsuitable ground for filtration purposes. The ground being badly drained, under drains are laid centrally between the distribution tiles at a lower level and surrounded by coarse material to allow the water in the ground to find ready access to the main outlet into the stream which should be located wherever possible, above the maximum flood level of the stream. Valves should be inserted in the chamber so that the sewage can be applied to any portion of the area in order to provide the necessary period of rest required for bacterial life.

NEED NEW HEATING FACILITIES

A new heating apparatus is needed for the town hall at Napanee. Boyle & Son offered a warm air furnace at $667, the council to do the needed work. The council decided to ask for tenders for a hot water system for heating the council chamber and offices, and a hot air system for the hall above.

ways, reclamation of old inland ponds, bogs and swamps, and the use of more water for the family and the stock now than in the earlier days of the country. When this Province becomes more thickly populated and when all the farm homes and stables are equipped with water systems, the problem will be still more acute unless present supplies are increased by making old wells deeper or sinking new ones into good water-bearing formations at lower levels, says R. R. Graham of the Physics Department of the Ontario Agricultural College, in a recent report.

In addition to this problem, there is the more serious fact that present supplies are badly polluted in certain sections of the country. The two difficulties, namely, shortage and pollution, in some cases at least, will in all probability be eventually overcome by the same method, namely the sinking of deeper wells.

The Department of Physics at the O. A. C. is now co-operating with the Geological Department of the University of Toronto, and it is hoped a topographical survey of the Province will soon be made showing the main water-bearing

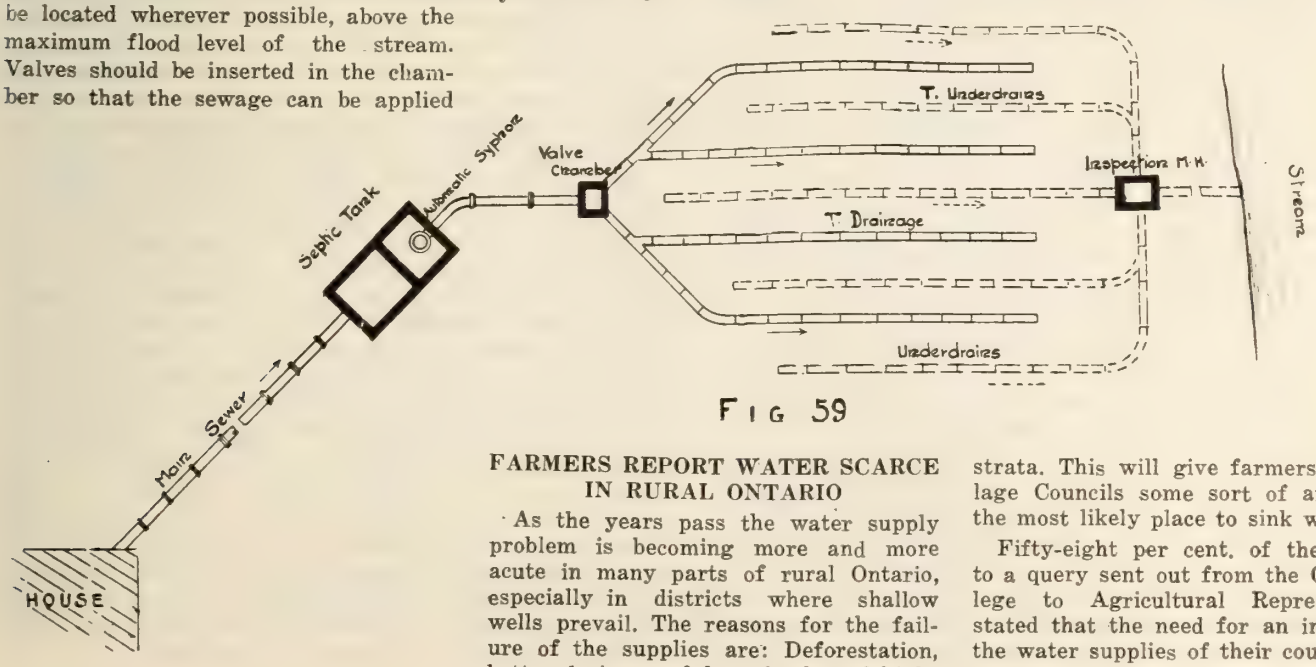


FIG 59

FARMERS REPORT WATER SCARCE IN RURAL ONTARIO

As the years pass the water supply problem is becoming more and more acute in many parts of rural Ontario, especially in districts where shallow wells prevail. The reasons for the failure of the supplies are: Deforestation, better drainage of farm lands and high-

strata. This will give farmers and Village Councils some sort of an idea of the most likely place to sink wells.

Fifty-eight per cent. of the answers to a query sent out from the O. A. College to Agricultural Representatives stated that the need for an increase in the water supplies of their counties was urgent.

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A Field For Business

AT A RECENT convention of a Canadian organization of farmers' wives it was stated that in reply to a questionnaire sent to two hundred and twenty-five representative farm homes, the following reports had been made. Thirteen enjoyed electric light, sixty-eight reported furnaces, one hundred and sixty-five had no water in the house, forty had good water systems and nine had only soft water, sixty-six had washers, three had electric washers and churns and five had minor electric appliances.

As a representative showing, these figures indicate the great need for water supply systems, sanitary equipment, electric lighting systems, etc., on Canadian farms. With such a fertile field offering there should be no lack of business in the rural districts. True the farmers have had to face lower prices and poorer crops in the last year or two, but in the majority of cases they have savings laid away from better years for times such as this, and they will readily see the advantage of encouraging efficiency on the farm by the use of modern equipment.

* * * *

Careful Guidance

IN LAYING plans for carrying on plumbing business during 1922 careful consideration should be given to the trend of the times. The extent of the plumber's success will be governed largely by his ability to anticipate the trend of public sentiment and other influences which will affect this year's business. Many lessons were learned from business in 1921 and with these lessons learned and business now in better condition than at the commencement of last year, the plumber has a fair start toward making 1922 a better year for business than was 1921. Without attempting to make any predictions as to what is likely to transpire, attention can be drawn to some developments which are bound to affect the situation. For instance conditions are such that economy, conservatism and efficiency will prevail in business because the pressure of circumstances compels observance of these measures.

Business that tries to run ahead of the conservative progress of the times is liable to disaster. This does not mean that plans for stimulating trade should not be encouraged, but that these should take into consideration existing sentiment and keep in mind the fact that business is business and not speculation. During the boom, business had to speculate despite itself, due to the rapid change of circumstances. Rising markets often made it unsafe not to "go long on materials." Failure to expand under conditions then existing seemed like turning one's back on opportunity. But that is not true of prevailing times. Undue stimulation and expansion will not bring the same response this year. Profits can be made and success can be established but they must be built up by means of economy and efficiency. Turnover will probably not reach the volume experienced in the boom times due to the economies which in turn are being practised by the consumer. Therefore profit margins in business can only be increased by economies in production costs, coupled with a fair and justifiable effort to encourage business.

* * * *

Fake Directory Schemes

A NATION-WIDE swindle involving over a million dollars and of which business men are the victims has just been brought to light as outlined elsewhere in this issue. As it is possible that the large plunder secured may tempt others to try similar schemes in this country it is well that the trade should be made acquainted with the modus operandi adopted.

The operator, a well dressed businesslike man, calls upon a firm with a dummy directory, (which turns out to be a bogus one), in which appears an advertisement of the firm in question. He asks for payment. If the order is questioned a signed contract is produced, the signature to which has been obtained by one of several fraudulent methods. In most cases however the presentation of the printed advertisement is sufficient to lull suspicion and the amount demanded is paid.

The scheme is not a new one; it was worked for a time in England some years ago, but for much smaller amounts—usually two or three dollars—on the pretense that the firm's name was to appear in larger type in a directory, which of course was a mythical one.

It should be borne in mind that no honest publisher of a directory will require payment without full investigation where any suspicion exists in a customer's mind. Where doubt arises business men are warned to investigate thoroughly before making payment for advertising space.

* * * *

The Sales Tax

A NUMBER of recommendations will come before the next session of Parliament which is to assemble on March 8, and to the trade one of the most important matters will probably be that of the Sales Tax. While in principle this form of taxation is as acceptable as any form of taxation could be, yet there are many loopholes in connection with the regulations under which it is imposed which permit of a good deal of misunderstanding.

Recent articles which have appeared in Sanitary Engineer on this subject have set forth views of plumbers, wholesalers and manufacturers on this question and it is apparent that there is a great need for some definite line of action to be established and followed throughout. At the present time some manufacturers are absorbing the Sales Tax while others are not, the same applies to many wholesalers and retailers. The way it works out the retailer generally has to absorb a goodly portion of the tax and this is contrary to the original regulation in which the government made it clear that the Sales Tax was to be passed on to the consumer. Certain manufacturers who are passing on the Sales Tax, as they are expected to do, complain that the practice of other manufacturers in absorbing it as an added incentive for business are establishing a precedent which makes it hard for them to do business.

A great deal could be said on this phase of the subject but it is unnecessary as the question of margin of profit does not directly bear on the question of how the Sales Tax should be handled. The equitable way for the tax to be dealt with is to pass it on to the consumer as the government intended it to be. Everyone is a consumer and will pay a fair portion of taxation according to what they buy. It is to be hoped that a thorough airing of the question will result in some satisfactory action at the next session of Parliament.

Fake Directory Scheme Run to Earth

Ringleaders in National Directory Frauds Indicted by Grand Jury—Five Men Arrested on Charge of Mulcting Million from Directory Advertisers in Many Cities

IF AT any time during the past twenty-five years your firm has paid forty, seventy-five or several hundred dollars to a business directory publishing house merely to honor your signature to a contract for advertising space which the officer signing did not recollect ordering, and of which no record could be found—you were possibly one of thousands who have been victimized to the estimated extent of more than a million dollars by a ring of alleged directory swindlers who have waxed rich on their spoils through a generation.

It has remained for the vigorous administration of the New York District Attorney, Joab H. Banton, at the request of the National Vigilance Committee, to take action of a decisive nature by rounding up five men, known in eminently respectable business and social circles in New York and Brooklyn, who are alleged to be the "higher-ups" in this nation-wide scheme which is believed to have bled unsuspecting business men in the name of advertising. Incalculable injury to the legitimate directory publishing business has resulted from the practices against which action has been taken. In the past, legitimate directory publishers had themselves spent thousands of dollars to fight these practices with which they were, as competitors, almost powerless to cope.

Under the keen direction of Assistant District Attorney Jerome Simmons, who had charge of the investigations for the State, the intricate phases of the alleged fraud were uncovered one by one. It was the privilege of the National Vigilance Committee of the Associated Advertising Clubs of the World to aid Mr. Simmons in many ways. When arrests were made every New York City newspaper gave a front page column or more to the story. Newspapers in scores of other principal cities carried similar stories.

The Men Arrested

Three brothers by the name of White and a partner, William B. Orr, were indicted by the New York County Grand Jury and arrested on December 30th, 1921, on charges of Grand Larceny. The White brothers are James H., Michael, and John F., all of New York City. William B. Orr is a resident of Brooklyn. These men did business under the name White, Orr & Co., at 156 Fifth Avenue, New York City, where they published a book known as "Reference Register." It is alleged that they collected every year on advertisements in this book although two issues only were published in the last four years. The book also contained advertisements of financial and commercial firms of high standing which had never been ordered nor paid for by the advertisers.

Arthur B. Bowen, one of the principals in the alleged fake directory scheme—but operating independently of White Brothers and Orr—was indicted and arrested several weeks ago. His arrest was kept secret until the others could be apprehended. The charge against Bowen is forgery, alleged to have been accomplished by altering an innocent signed paper into a contract for advertising space in a directory which never existed. Bowen's arrest was made by Detective Joseph A. Daly, of New York Police Headquarters, in charge of detectives who worked on the case, when he discovered a hunchback negro in a little job printing shop in Harlem by whom it is alleged Bowen had advertisements printed and additional lines printed on signed slips to be collected.

Among the business directories, under spurious publishers' names, on which it is alleged fraudulent collections have been made in various parts of the country are: Randall's Commercial Register, Lockwood's Reference Directory, Cushing's Directory, Livermore's Lexicon of Financial Firms, Howard's Handy Guide, Lloyd's Industrial Record, Parker's Annual Business Manual, McMillan's list of Manufacturers, Norcross Reference Book, Plymouth List of Jobbers and Odell's Official Directory.

An Ingenious Scheme

The mulcting scheme in which it is charged the Whites, Orr and

(Continued on page 24.)

ADVERTISERS COMPLIMENTARY BOOK ORDER
PHILLIPS' BUSINESS DIRECTORY

.....191 in accepting a FREE Copy of.....
we hereby agree to keep same in a conspicuous place for public use.

In accordance with this agreement it is understood that the advertising matter authorized by us for representation and for which we contracted, must appear in this publication, edition for 191.., upon presentation

Name of Firm.....
Per.....
Address.....

The form signed by business firm before alleged alterations.

PUBLISHER'S AUTHORIZED ADVERTISING CONTRACT

In accordance with this agreement it is understood that the advertising matter authorized by us for representation and for which we contracted, must appear in this publication, edition for 1919-20, upon presentation will pay Fifty Dollars.
Book not included.

Name of Firm, SMITH, JONES & CO.

Space, page. Per E.L.S.
New York, 8/4, 1918. Address, 60 B'way, N.Y.

The signed form changed to "advertising contract" but cutting off top and printing in new lines.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

OBITUARY

Chas. H. Ivey, vice-president Empire Brass Co., London, Ont., died in Naples, Italy.

MOVE TO NEW OFFICES AND SHOWROOMS

Byrne Brothers, Toronto, announce that they have removed to new offices and showrooms at 465 Bloor Street, West.

SCARBORO WATER SYSTEM WORKING IN GOOD SHAPE

Birch Cliff.— With a number of services yet to be ins.alled, 170,000 gallons of water are being pumped daily by the new Scarboro waterworks system. The capacity of the plant is 500,000 gallons a day. It was stated at a meeting of the Public Utilities Commission that the actual water consumption would not be given until the meters had been given their first reading. The plant is working perfectly and the engineers reported that all the pumps had lived up to specifications.

IMPRESSIVE FUNERAL SERVICE

Port Arthur, Ont.—The funeral of William Brown Sime, ex-Alderman and head of the Dominion Plumbing Company, Port Arthur was very impressive. The funeral service at the house was attended by a large number of persons and hundreds lined Court Street, along which the procession proceeded to Arthur, and, with bared heads paid a silent tribute to the passing of an estimable citizen and one who had been associated with many public organizations. All plumbing and heating establishments were closed and many master plumbers attended the funeral.

OPEN PLUMBING BUSINESS

Sarnia, Ont.—Bob Callum and James Sweet announce that they have formed a partnership to engage in plumbing, heating and sheet metal work of all kinds. Both are well known in the city and especially so in the building trades which they have been associated with locally for a great number of years. The former served his apprenticeship with W. J. Barrie and for eight years was with Goodwin and Co., and the past seven years has been employed with J. Filsinger. The latter served for eight years with J. Filsinger. The new company have leased premises at 139 Queen Street and are now open for business.

ONTARIO INCORPORATIONS

Gentle, Travis and Weinraub Ltd., Head office Toronto, capital $40,000, to carry on business as plumbers, steamfitters, tinsmiths and manufacturers and as contractors for plumbing and sanitary fixtures and supplies, heating and ventilating plants, drainage work, etc.

ARMSTRONG HOLDERS

The Armstrong Mfg. Co., Bridgeport, Conn., has recently placed on the market two sizes of holders which have been designed for use in making both right and left hand pipe nipples. The one holder known as No. 20 is suitable for nipples from ¼ to 1 inch in size, while the other holder known as their No. 30 is for nipples ranging in size from 1 to 2 inches.

CHANGES IN FIRM

Hamilton, Ont.—The Kaustine Company of Toronto, which has been reorganized and transferred to Dundas, is one of the new local industries which is having a successful start. Associated with the concern is the Dominion Welding Products Company. The new directors are John F. Crowley, president and general manager; H. F. Powell, vice-president, and W. G. Gibbs, all of Dundas. The company manufactures steel tanks, steel plate, water supply and sewage systems. The concerns are operating at present in the old Chapman Engine Works premises, and work has been going on for some time getting in the equipment of the two companies.

HEATING PLANTS URGED FOR WINNIPEG HOUSES

Winnipeg.—The establishment of central heating plants, under civic ownership and control, is believed by S. C. Oxton, deputy minister of public works, in the provincial government, to be a solution to the problem of heating Winnipeg buildings. Mr. Oxton bases his opinion on the record of the provincial government's central heating plant. This plant heats the parliament buildings. The cost of heating is away below what it would be with a separate plant in each building.

Mr. Oxton believes it would be much cheaper for householders to pay their share for a central heating plant than to provide and maintain their own plants. He said to establish a central heating system the limit of radiation would have to be arrived at. Once established, such a system would free householders from furnace worries.

McCLARY MFG. CO. BUYS REPUBLIC STAMPING AND ENAMELING COMPANY

Announcement has been made to Hardware and Metal by the McClary Manufacturing Co., London, Ont., of the purchase by that firm of the Republic Stamping and Enameling Company of Toronto.

LONG BRANCH WANTS WATER SUPPLY

Delegations from both the east and west sections of Long Branch will attend the Township Council to ask for immediate consideration of the recommendation of the superintendent of sanitary engineering of the Ontario Board of Health, that drinking water be secured from the New Toronto mains. Nominal terms, covering cost and interest, are stated to be available.

WESTERN ONTARIO NEWS

W. H. Biggs, 72 Bruce St., London, wants prices on warm air heating, plumbing and electrical work for new $4,500 residence.

Fred Merrick, Front St., Strathroy, Ont., wants prices on warm air heating, plumbing and electrical work for new $3,500 residence on which he has commenced work.

The congregation of Dundas Center Methodist Church, London, want prices on hot water heating system which it is planned to instal this spring. Rev. John Garbutt, 484 Dundas St., pastor.

Watt & Blackwell, Bank of Toronto Building, London, are preparing plans for new sanatorium to cost $250,000, and want prices on heating, plumbing and electrical equipment.

J. Vicar Munro, Bank of Toronto, London, is preparing plans for new $20,000 church to be erected by Methodist congregation at Crediton, Ont., and wants prices on warm air heating and electrical work, also sheet metal work.

Plans are to be prepared immediately for new Sunday school at Listowel, Ont., for Knox Church. H. P. Wanzer, chairman of building committee. Prices wanted on warm air heating, plumbing and electrical work.

Council at Goderich, Ont., will secure estimates on cost of sinking new wells and if satisfactory, contemplates building new pump house and installing new pumping equipment. Mayor Wigle, chairman of committee.

ASBESTOS EMBARGO FOR QUEBEC

Quebec.—"The government is giving the matter of an embargo on raw asbestos very serious consideration," Premier Taschereau states. "We are anxious to do everything possible to build up an industry in manufactured asbestos in this province, so as to reap the benefit of the great asbestos deposits this province contains."

"BULLDOG" SANITARY WOODWORK

An excellently finished and clearly illustrated catalog has recently been issued by Hurd & Co., Ltd., of London, Ont., covering the "Bulldog" line of Sanitary Woodwork. Closet seats and tanks in various designs, makes, and styles are clearly featured throughout. The book is a simple yet adequate catalog covering this class of products.

PETERBORO FILTRATION PLANT SOON READY

Peterboro.—Waterworks Superintendent, R. L. Dobbin, in his report showed that by the commission laying its own pipes in commission with the filtration plant, over $18,000 had been saved. Contracts for the plant were let for $304,-813, and to the end of December, $219,-936 was expended. Expectations are that the plant will be opened very shortly.

OFFER WITHDRAWN BY NEW TORONTO

Etobicoke Township Council has received notice from New Toronto Public Utilities Commission of withdrawal of the offer to supply water for other sections of the township. An offer of two year's standing had been made to supply 100,000 gallons at a 15-cent rate, a second such amount at a 10-cent rate, and a third at 9 cents, but it was deemed unfair to hold these prices over for another year.

The situation is complicated, in view of the recent decision of the Ontario Municipal and Railway Board that the Long Branch water supply must be received from New Toronto, and that no other scheme would be received by the board.

AUTOMATIC TEMPERATURE CONTROL

A new booklet covering automatic temperature regulation has been issued by the Steam Fittings Co., Ltd., of West Drayton, Middlesex, Eng. This booklet gives descriptions and illustrations of a number of devices such as steam traps and other specialties. The purpose of such products is to maintain constant temperatures by automatically shutting off the heating medium when the desired temperature is reached, and re-admitting it at a slight drop. The "Sanson" line of automatic temperature regulators manufactured by the Steam Fitting Co., are so adapted as to operate electric, steam and water heaters. Other products, such as strainers, automatic air valves, thermometers, gauges, and high pressure screw-down bib cocks, are also included in this interesting booklet.

Contracts Awarded

Kitchener, Ont. Heating and plumbing contracts for church costing $40,000, are awarded to Canadian Blower & Forge Co., and Henry Neeb, Foundry Street, Kitchener.

Toronto, Ont. Plumbing and heating contracts for four stores and apartments costing $40,000 for J. H. Rocke, are awarded to R. J. Ritchie; C. J. French Hardware Co., has plumbing and Howard Furnace Co. the heating contracts for four stores and apartments for J. MacLean; Ross Belyea has plumbing and A. S. Poutney has heating contracts for store and apartments for T. Wright; plumbing contract for residence for Ive & Loader is awarded to Duffort Bros; plumbing and heating contracts for four bungalows for T. H. and W. French are awarded to Robert Whitton; John W. Sheard has heating and plumbing contracts for residence for L. Spiers; plumbing contracts for 3 pair residences for M. MacDonald are awarded to W. J. Watson and Howard Furnace Co. has heating contract; R. Whitton has plumbing and W. Howard the heating contracts for four apartment, duplex residence for Simon & Steadman.

Ottawa, Ont. Plumbing and heating contracts for residence for S. Brooks are awarded to A. J. Williams and Gervin & Hodgins; heating and plumbing contracts for two residences for Barrett Bros. are awarded to J. R. Cameron and Gervin & Hodgins.

North Vancouver, B. C. Plumbing and heating contracts for school for North District School Board, are awarded to J. P. Young.

Montreal, Que. J. Demers has plumbing and heating contracts for stores and four residences for Mr. Murphy.

Quebec. Plumbing and heating contracts for rebuilding Morin block are awarded to J. Miller.

Victoria, B. C. Plumbing and heating contracts for alterations to Bank of Toronto are awarded to Barney Boe Ltd.; plumbing contract for alterations to store for A. E. Todd are awarded to Hayward & Dods.

Outremont, Que. Plumbing and heating contracts for residence for J. A. Goyer are awarded to E. Lesperance.

Vancouver, B. C. Plumbing and heating contracts for apartment block for Kitsilano Investment Co. are awarded to Orr Bros.

GAS LIGHT FIXTURES

R. E. King, Maitland, Hants County, N.S.—Could you give me the address of firms making Gas Light Fixtures.

Answer.—We are pleased to quote you herewith the following list:

Barton Netting Co., Windsor, Ont; Bennett & Wright Co., Toronto; Consumers Gas Co., Toronto; Farquhar Bros., Halifax, N. S.; Galt Electric & Gas Fixture Co., Galt, Ont.; The Garth Company, Montreal; W. J. McGuire, Toronto; The Robt. Mitchell Co., Montreal; The Jas. Morrison Brass Mfg Co., Toronto; Wentworth Brass Co., Hamilton, Ont.

FAVORS FORMING DRAINAGE BOARD

Montreal.—For supervising the construction and for co-ordinating all plans for the construction of sewers, the public works committee of aldermen resolved to recommend the appointment of a drainage commission, which would operate on lines similar to the water board, which for two years has had entire charge of the extensive aqueduct improvements.

In the course of the discussion, instances were cited where the insufficiency of sewers was the cause of frequent floodings by the fact that the sewers were too small for the localities, or where a large sewer emptied into a small one, or where a large trunk sewer had been built at the cost of $800,000 and had never been utilized.

As it was further estimated that the construction of trunk sewers in the not too remote future would require an outlay of some $12,000,000, the committee accepted the suggestion of Ald. Bray and will report accordingly.

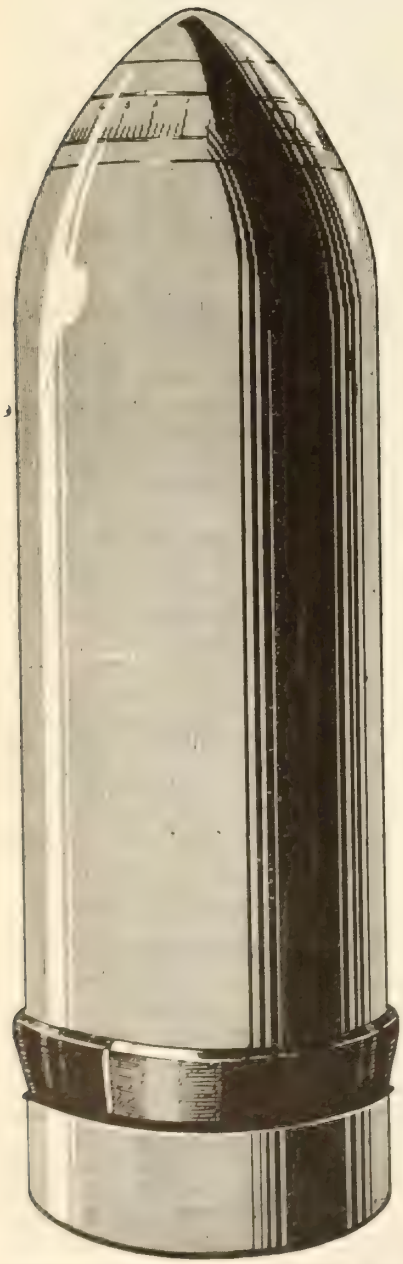
A New Water-Works Hazard.—Crawfish, according to the Engineering News Record, threatened to destroy a canal bank on the Cape Fear River, by tunneling into the bank and causing it to leak. Sheet piling did not cure the trouble, as the fish worked round the ends or beneath the piling, so rows of auger holes were made in the bank. The holes were filled with chloride of lime and small sticks of dynamite exploded in them. Other holes were charged in the same way with common salt and the fish were presumably exterminated as the leaks stopped.

A CORRECTION.

In the January 15 issue of Sanitary Engineer appeared an article setting forth the selling methods adopted by Wright-Teale Co., London, Ont. An illustration was used on the same page emphasizing some point brought out in the article and by coincidence the illustration was one of the showroom of Messrs. Noble and Rich of the same city. Sanitary Engineer regrets any misapprehension which may have resulted.

Free Advertising Cuts

We offer you, free, attractive, well-planned advertisements like the one here shown. If you have not already received a folder containing illustrations of these cuts, ask for one. Always order by number. You are quite free to change the copy but we do not think the illustration can be improved upon.



BUY -- BU

AND CREATE

REPLACE

OF PLUMBING

The Ontario Government is appealing to all business firms and individuals to link up with its great co-operation campaign to create more employment for the workingman.

The retail trade has been asked to help by getting their prices down to a replacement basis. The idea is to simulate buying so that the retailer will be able to order more freely from the manufacturer and thereby create more employment.

This is an Honest Endeavor to Keep ou

Your chance to provide more employment and b
FITTING. Let us give you an estimate. WE CAN SA
will be strictly first class guaranteed goods; and our w

DUFTON &

STRATFORD AGENTS

NEAR STONE BRIDGE

Sales Ammunition

In a previous advertisement we pointed out that the Plumbers are the Infantry of Industry.
There is ample artillery to support your advances in 1922.
It is predicted that the business battle this year will require special courage and determination—competition will be keen.
Port Hope is supplying "Sales Ammunition" that makes hits.

Port Hope Sanitary

Factories:
PORT HOPE, ONT.

Winnipeg Office:
405 TRIBUNE BLDG.

1204 ROYAL

-- WORK

R EVERY MAN

NT SALE

NG GOODS

This Sale includes Bath Tubs Wash Basins, Roll Rim Sinks, Toilet Outfits, Range Boilers, Furnace Coils, etc., etc. Also pipe and pipeless Furnaces and Furnace Supplies. Be sure and get our prices before buying elsewhere. In addition we will deduct 10 per cent. from labor charges for installing. This also applies to repair work.

Employed During the Slack Season.

ally. We specialize on STEAM AND HOT WATER ONEY. EVERYTHING SOLD DURING THIS SALE annot be excelled. We stand back of every job we do.

AUNDERS

"BANNER" FURNACES

137 46 HURON STREET

SUPERIORITY PURITY DURABLE AS THE PYRAMIDS

Let Us Help With Your Advertising

No matter if you have the best goods in the world to offer, there are no buyers until you cause people to know you have them. You must advertise. Appreciating the value of local advertising to help you sell, we are co-operating by offering you free, well-planned, productive advertisements—use them.

hat Hits The Mark

The illustration above shows a "direct hit" made by Dufton & Saunders of Stratford. Your local advertising, along with the government's effort to stimulate business and employment, will do much, locally, to relieve unemployment, stabilize conditions, and definitely increase your own prosperity.

lfg. Company, Limited

fice: LDG., TORONTO

Vancouver Office: 325 HOWE ST.

Montreal Office: 604 SOUTHAM BLDG.

FAKE DIRECTORY SCHEME

(Continued from page 19.)

Bowen and their agents have been engaged, while old in concept, has been somewhat ingenious in application. It was particularly well designed to evade detection and identification of the principals.

Checking accounts were opened at various small banks in New York and New Jersey in fictitious names and checks made out to them were collected through these accounts, it is alleged. Assistant District Attorney Simmons found that under the names of Alexander Livermore and Benjamin Knapp, more than $30,000 was cleared through an Edgewater, N. J., bank in about 16 months. This money was then checked out to enrich Orr, the White brothers and their agents

Serious Losses to Advertisers

Investigation showed that numerous firms have been victimized to a serious extent through payments for directories which have never existed. A paint and oil company in New York, when approached by an investigator, searched its files for only 18 months back and found receipts and cancelled checks for advertising space in various spurious directories aggregating almost $3,000. All of these were identified by the investigator as fraudulent.

That the operators of this kind of scheme find graft easy is shown by marginal notations upon some of the used "order blanks" in the possession of the District Attorney. A series of these bear the rubber stamp of a New Orleans lumber merchant, with the signature of his secretary. The slips bear dates of February, 1907, and call for amounts of $700, $640, $510, and $1,000. Upon the $700 order is this pencilled notation: "Signature O. K. Soft."

Written in ink on another order is this: "Have agent discontinue calling. Signature O. K. but don't like price. Too high. Will cut to $500, and keep between it and $600."

But conditions evidently changed for a later order bore this pencil message: "Make it $1,500. Soft."

According to accomplices in the scheme, who have confessed to Mr. Simmons, signatures were obtained originally by getting signed requests for a free directory or a signed order for listing a name in the directory.

Turned Signed Forms Into Contract

After obtaining an original signature, the signed paper was altered by the ancient but convincing process of cutting off a printed line at the top and by printing in new lines, such as, "Order for Advertising Space," or "Publishers' Advertising Contract," and other phrases essential to the alteration in space left for the purpose. One of the witnesses before the Grand Jury was a man who is said to have actually seen James White alter the signed slips and who himself, at White's direction, filled in amounts to be collected. Signatures were obtained time and time again by getting the victim to sign a blank form on the excuse that it must be returned to the collector's office to show that collections had been regularly made. Such form was called a "Has Paid Voucher."

It is alleged that "Phillips' Directory," a small but legitimate publication, bought by the Whites some years ago, was used to get signatures on orders which were later altered and collected upon in various amounts—depending upon the commerical rating of the firm and the ease with which it could be parted from its money by the system employed.

Studiously avoiding use of the mails, great pains were taken by collectors to avoid arrest or serious consequences if arrest occurred. The "collector" always travelled with an "outside" man who carried all the signed papers and receipts to be covered in the day's rounds. The collector carried only his one victim's signed "contract," a receipt and the directory. The book he carried was probably the only one in existence. Thus equipped, he was ready to show the victim his page or half-page advertisement, which in fact had been specially printed and pasted in the book. It carried also many advertisements of prominent houses which were not paid for but were inserted to create an atmosphere of respectability for the book. If the victim became suspicious, the collector withdrew, saying that he would have the office write about the matter. He then returned the signed contract to headquarters and advised that it be killed.

Alleged Principals Evaded Custody

If a collector at work was ever arrested the papers and book in his possession made slim evidence on which to base a criminal charge and yielded no trace of the collector's employers or associates. In fact, as far as is known, few of these agents have ever been in custody. Michael White was arrested in Dallas, Texas, in 1915 with a coworker named J. Mack, but could not be held because of lack of evidence. It is said that an operator in Elgin, Ill., was forced to flee across the prairies to Chicago, to escape arrest by the local police. In San Diego, Calif., many years ago the authorities met with greater success by arresting an agent named Fleischman who carried on his person incriminating evidence leading to a sentence of 5 years in San Quentin.

PLUMBERS ACCEPT CUT

Sarnia, Ont.—Sarnia plumbers after taking a week to think over a wage reduction proposal of 10 cents an hour contained in the ultimatum of the master plumbers, returned to work this week on the employer's terms.

"DUNHAM" STEAM TRAP

Among the catalogs and booklets recently to hand, is a copy of the French issue of Bulletin No. 200 issued by the T. A. Dunham Company, Limited, of Toronto, Ontario. This booklet illustrates two of the principal products which figure in the Dunham system of heating. The preparation of this catalog in French, is with the purpose of being helpful to architects and heating contractors in Eastern Canada. A number of clear cut illustrations, give an accurate idea of the method of installation of Dunham appliances on radiators under varying circumstances.

HEATING THE HOME

An interesting book depicting various methods of "Heating the Home" has been compiled by the Dominion Radiator Co., Ltd., of Toronto, Ont. The introduction to the book deals with the early methods of heating, and introduces step by step the open fireplace of olden days, and the coal-stove and the hot air furnace.

Hot water heating, as achieved by the Safford Mogul boilers and Safford radiators, is then fully enlarged upon in this interesting catalog. The various attributes of this style of heating, are described in detail. A number of illustrations of radiators and heating apparatus in practical installation, complete the booklet.

TYPE "M.H." ELECTRIC RANGE

The Canadian Westinghouse Co., Ltd. of Hamilton, Ont., are now giving special prominence to their New Type "M. H." Electric Range which is their latest design in electric stoves. This product includes all the latest features of electric ranges, including the various heat units, the removable rack guides, the three-heat double-pole switches which entirely disconnect the heaters from the circuit, the thermostat embedded in the oven door to indicate the heat in the oven, and many other modern improvements. Locking handles are provided for the oven doors, and upper warming closet can be furnished if desired. There is the usual large sized oven, a boiler, and four heating plates. The standard plug receptacle is also provided for connecting other socket appliances.

PATTERNS FOR ELBOWS

(Continued from page 16.)

off in much the same way being careful to pick the girth from A and setting the point X in its proper position. Otherwise the process of common elbows is applicable. Laps for riveting the various gore pieces together must be allowed extra, also for seaming.

It will be observed that by extending the lines from section A direct into the large elevation and thereby ignoring the miter between gores III and IV a regular tee intersection would be made and this would save making the small gore pieces IV separately, as this is always a loose part and gives more or less trouble when assembling.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

MARKETS AT A GLANCE

AN extensive list of price reductions features the current markets on heating and sanitary lines. The asbestos market records easier levels, while reductions are also noted on galvanized sheets, plumbers' oakum, bar iron and steel, Stillson wrenches, brass and copper wire, and the higher grades of white wastes. There has also been a revision in Trimo wrench prices, while some variance is noted in closet outfit quotations. Easier price levels also appear on zinc sheets, and a similar tendency exists in the primary copper stages. Ingot metals are dull and on a buyers' market, with only moderate trade in scrap materials and prices sagging slightly. The recent easier price levels are credited with having stimulated business in boiler tubes, and more inquiries are reported for pipe fittings. Moderate trade at present exists in current circles, requirements for plumbing and steam-fitting materials being described as just about equal to general expectations at this season. Brighter prospects are evident for an active building program throughout the Spring and Summer periods, with signs of present activity in construction prevailing in numerous quarters.

MONTREAL MARKETS

MONTREAL, February 14.—Markets for plumbing and steamfitting supplies are still featured by price recessions in numerous lines. The new standard list on range boilers, as outlined in our last issue, is now issued to the trade. List prices and discount are now quoted where formerly net quotations were given. Up to the present a few firms have not yet adopted these new selling prices, but it is expected they will become general in the near future. Another important revision is on asbestos products. Pipe coverings are now about 25 per cent. lower in prices, this reduction taking place since the beginning of the year. Asbestos sheathing is now quoted at $8.00 per 100 lbs., a reduction of 3 cents per pound. The sheet markets are again featured by a revision in all but American galvanized sheets and black sheets. Reductions are of a minor nature on all lines, but show that the trend of the markets in general is still in a downward direction. Zinc sheets are the only line in lead products with reduced quotations up to the present although the undertone of the market is somewhat easier owing to the trend of metals on the primary markets. Higher quality wastes are again slightly reduced, following the revision of two weeks ago. In tools, chain pipe vises and machinists' hammers have new lower prices. The market for waste materials is little changed, while ingot metals are quiet but a little steadier.

CHAIN PIPE VISES HAVE LOWER QUOTATIONS

Montreal.

A reduction has been made in the quotation on both No. 1 and No. 2 chain pipe vises. No. 1 will now call for $4.15, and No. 2 for $8.75 each,

EASIER QUOTATIONS ON MACHINIST HAMMERS

Montreal.

Machinist's hammers show a reduction in prices of approximately 10 per cent., with following prices now given; No.30, 1 lb., $9.20; 1¼ lb., $9.90 a dozen.

LOWER PRICES RECORDED ON ASBESTOS PRODUCTS

Montreal.

Since the opening of the year the trend of the asbestos market has been decidedly downward, and in the past six weeks quotations on pipe coverings have dropped approximately 25 per cent. Asbestos sheathing is now quoted at lower figures, showing a reduction of 2 cents per pound. This is now quoted locally at $8.00 per 100 lbs. Local distributors now anticipate a fairly steady market as present levels are well down to productive costs, and compare favorably with pre-war prices.

NEW LIST ADOPTED ON RANGE BOILERS

Montreal.

A new standard list on range boilers is now issued, list prices quoted with a discount, where formerly net prices only were given. Manufacturers state that in future list prices will remain at set figures, any revisions occurring to be made through the changing of discounts. Present discounts are 50 per cent. for the standard boiler, and 40 per cent for the extra heavy in all sizes. These new prices are really a revision, as some of the smaller boilers in standard weight are reduced, while larger sizes are advanced in price. The 30 gallon boiler, however, remains unchanged at $8.75 net. In the extra heavy, all the better selling sizes are shown at reduced figures, and only the very large boilers show increased quotations. The amount of reduction varies on the different sizes, some being of minor proportions, while others show a substantial decline. Although at the moment the new quotations are not yet adopted by all concerned, it is expected that in the next few days all dealers will adhere to these revisions, and hope is expressed that the market will now settle down with uniform prices quoted in all quarters. Following are list prices and discounts;

RANGE BOILERS:—

5	Gallon	$13.50
12	"	14.00
18	"	15.00
25	"	16.00
30	"	17.50
35	"	20.50
40	"	22.75
52	"	38.00
66	"	60.75
82	"	74.00
100	"	103.00
120	"	117.00
144	"	164.00
168	"	187.00
192	"	210.00

Discounts, Standard weight, 50 per cent.
Extra Heavy, 40 per cent.

HIGHER QUALITY WASTES RECORD LOWER PRICES

Montreal.

There is now a further reduction announced in the prices of the higher grades of cotton wastes, cream polishing being lowered one cent per lb., and three qualities of whites are now one-half cent lower. Other lines, also wool packings and wipers are unchanged in price. The cotton market has displayed an easier tendency in recent weeks and lower quotations are now announced on other cotton materials such as sash

cord, rope, cotton clothes lines, etc. Following are revised quotations.

COTTON WASTE—Cream polishing, 18c. per lb. White—XXX extra, 16c.; XX grand, 15c., XLCR, 14c.; X Empire, 13c.; X press, 11½c.

Colored—Fancy, 13½c; Lion, 12c; Popular, 9c; Keen, 7½c.

Wool Packing—Arrow, 25c; Axle, 22c; Anvil, 18c.

Dominion Wipers—White cotton, 20c; colored cotton, 14c.

EASIER QUOTATIONS APPEAR IN SHEET MARKETS

Montreal.

The local sheet markets are featured this week with revisions on many lines, English standard galvanized sheets, both Queen's Head and Fleur-de-Lis brands being quoted 25 cents per 100 lbs. less. Welsh Canada plates are reduced 25 cents in boxes of 52s. and 60s. while terne plates are now quoted at $16.00 per box of 112 sheets, former quotation being $16.50. In bright tin plate, whole boxes are quoted 50 cents less while the 56 sheet boxes are reduced 25 cents. Black sheets and American galvanized are the only two lines remaining unchanged, quotations on these still being quoted with a range because of the variation in quotations among the different jobbing houses. Business in all lines is described as seasonably light, although a few inquiries now coming to hand offer encouragement, and dealers are still firm in their opinion that a revival in business will be forthcoming at the close of the winter months. Revised quotations are as follows.

BLACK SHEETS—

10 gauge	4 00	4 50
12 gauge	4 10	4 60
14 gauge	4 40	4 70
16 gauge	4 50	4 80
18-20 gauge	4 55	5 05
26-gauge	4 60	5 20
22-24 gauge	4 65	5 25
28 gauge	4 75	5 35

GALVANIZED SHEETS—

10¾ ounce	6 75	7 60
28 gauge	6 30	7 20
26 gauge	6 05	6 85
22-24 gauge	5 90	6 60
20 gauge	5 75	6 45
18 gauge	5 75	6 35
16 gauge	5 60	6 35
14 gauge	5 45	6 35
12 gauge	5 30	6 35
10 gauge	5 20	6 35

English Standard—	Queen's Head	Fleur-de-lis
28 gauge	7 50	7 00
26 gauge	7 25	6 75
24 gauge	6 65	6 35
22 gauge	6 30	5 90
18-20 gauge	5 60	5 57

NOTE—These prices are for full bundles; an extra charge of 25c to 35c per 100 lbs. is made for broken lots. Extra for sheets 4 ft. wide, 50 cents per 100 pounds. Extra for sheets 3 ft. wide, 28 ga. and 10¾ oz. 25 cents per 100 lbs.

CANADA PLATES—

Dull.	
18 x 24 x 52s	5 60
18 x 24 x 60s	5 80
18 x 24 x 75s	6 10

WELSH CANADA PLATES—

Polished.	
18 x 24 x 52s	7 75
18 x 24 x 60s	8 00

BRIGHT TIN PLATES

20 x 28 x 100 lbs., bases	16 00
20 x 28 IC., 112s	16 50
20 x 28 IX., 112s	18 50
20 x 28 IXX., 56s	10 50
20 x 28 IXXX., 56s	11 25

TERNE PLATES

20 x 28 IC. 112s	16.00

LOWER PRICES NOW QUOTED ON ZINC SHEETS

Montreal

Slightly easier quotations are now recorded on zinc sheets, both in full casks and broken lots, the reduction being ½ cent per lb. in both qualities. All other lines remain unchanged, with the undertone of the market remaining somewhat easier owing to the softer tone in metals on primary markets. In this connection, lead, the principal metal, is reported considerably lower on the London market while the situation on this side remains fairly steady because of consistent demand. Prevailing prices are the following:

Lead pipe, per 100 lbs.	12 50
Lead waste, per 100 lbs.	13 50
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	10% off
Lead wool, lb.	0 18½
Lead sheets, 2½ lbs.	0 10½
Lead sheets, 3 to 3½ lbs., sq.	
Do., 4 to 8 lbs., sq. ft.	0 09½
ft., lb.	0 10¼
Cut sheets ¼c lb. extra and cut sheets to size, ¾c lb. extra.	
Solder, guaranteed, lb.	0 28½
Do., strictly, lb.	0 26½
Do., commercial, lb.	0 23½
Do., wiping, lb.	0 24½
Do., wire, lb.	0 32½
Zinc, sheets, casks	0 11
Do., broken lots	0 11½

LITTLE VARIATION NOTED IN SOIL PIPE AND FITTINGS

Montreal.

Current quotations on soil pipe and fittings remain at former discounts, with little variation to report in business conditions. Trade is seasonably light at present with little improvement looked for until the weather opens in the later spring months. Following are unchanged discounts:

SOIL PIPE—	
2 and 3 inch	47½%
4 inch	50%
5 and 6 inch	47½%
Fittings—	
2 to 6 inch	50-10%
Do., broken lots	0 12

BOILER TUBE PRICES NOMINALLY UNCHANGED

Montreal.

Local quotations on boiler tubes are nominally unchanged with slightly lower prices offered for attractive inquiries. Business continues of fair volume although the lack of new work is still apparent. Nominal prices now quoted are the following

BOILER TUBES—	Seamless	Lapweld
1 inch	24 70	.....
1¼ inch	24 50	.....
1½ inch	24 00	.....
1¾ inch	26 00	26 00
2 inch	24 50	20 50
2¼ inch	27 75	23 50
2½ inch	32 50	24 50
3 inch	40 00	30 50
3½ inch	52 50	34 75
4 inch	65 00	44 00

QUIETNESS STILL PREVAILS IN IRON AND STEEL

Montreal

The volume of business now recorded in iron and steel is of a limited nature, with stocks also comparatively low but quite ample to take care of prevailing demand. However, expectations of spring business are expressed in different quarters, and an improvement is looked for with the close of the present month. In primary circles, also, trading is at a low ebb, wtih quotations nominally unchanged. Although a revision was made locally only a few weeks ago, it is reported that further price concessions are offered for attractive orders. Whether this will develop into a further general lowering of prices is hard to determine, but the opinion is expressed that improved business in later months will remedy this situation. Unchanged quotations are as follows:

IRON & STEEL—

Common bar iron, 100 lbs.	2 65
Refined iron	4 15
Iron finished machinery steel	2 70
Mild steel	2 65
Single reeled machinery steel	4 75
Band steel	2 65
Spring steel	4 25
Sleighshoe steel	2 65
Tire steel	2 85
Toe calk steel	3 55
Harrow tooth steel	2 80
Mining tooth steel, per lb.	0 21½
Black Diamond tool and cast steel	0 21½

NOTE—Refined iron is approximately $1.50 per 100 lbs. over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs. extra.

SOMEWHAT EASIER TONE IN BRASS AND COPPER GOODS

Montreal

Base prices on brass and copper sheets, rods and tubes remain unchanged on the local market, with the undertone somewhat easier owing to a softer tone in metals on primary markets. Copper in the past few weeks has been quoted slightly lower after the decided firmness previously displayed. While slightly lower quotations are not unlikely in the near future, following are present prices;

BRASS—	Base
Sheets	0 25
Rods, ½ to 1 inch, round	0 23
Tubing, seamless	0 32
COPPER—	
Rods, ½ to 2 inch	0 30
Soft sheets, plain, 16 oz. and heavier lb.	0 34
Plain tinned, 16 oz. and heavier, lb.	0 39
Polished and tinned, 16 oz. and heavier, lb.	0 43
Tubing, lb.	0 34

Above prices are for full sheets or bars. Cuts 5c. per lb. higher.

LITTLE VARIATION IN COMPRESSION GOODS

Montreal.

The various lines of compression goods show no further price changes since the revision of certain lines of valves two weeks ago. Trade continues of a quiet nature, with orders still of a sorting character, and dealers anticipate little variation until the later months of spring when building operations will require supplies.

COMPRESSION WORK—

Compression work, standard	43%
Fuller work, standard	30%
Bath cocks, compression	30%
Basin cocks, Fuller No. 0	30%
Do., Nos. 1 and 2	30%
Flatway stop and waste cocks, standard.	54%
Roundway stop and waste cocks, std.	46%
Brass steam cocks, standard.	40%
Radiator valves, standard	58%
Do., removable disc	58%
Globe, angle and check valves, std.	25%
Gate or straightway	16/10%
Emco Globe Valves	33%
Emco check valves	33%
Jenkins Globe, angle, check and swing check	19%
Jenkins gate or straight way	25%
Jenkins iron body, globe and angle	15%
Jenkins iron body gate	33%

EARLY IMPROVEMENT EXPECTED IN TROUGH AND PIPE

Montreal.

Eavestrough and conductor pipe quotations are unchanged since the revision in recent weeks. The movement of these products is naturally quiet at this season of the year, but towards the end of the month increased sales are looked for as dealers will at an early date anticipate their season's requirements. As in the case of other galvanized products dealers state that present prices on these products are now well down to existing quotations on galvanized sheets, and a fairly steady outlook is lent for spring business. Naturally the trend of trough and pipe depends entirely on the market for these sheets and on this market it has been pointed out for some time past that further revision would be of a minor nature as present prices are considered reasonably low at manufacturing centres. Unchanged prices and discounts are the following;

EAVESTROUGH—

O.G. Round and Half-round, per 100 ft., 8 in., $16.90; 10 in., $18.70; 12 in., $22.20; 15 in., $29.80; 18 in., $37.80.

O.G. Square bead, per 100 ft.: 8 in., $15.90; 10 in., $17.70; 12 in., $21.20; 15 in., $28.80; 6 in., $36.80.

Discount 70|10 per cent.

Conductor Pipe, Round, Plain and Corrugated, per 100 ft.: 2 in., $18.40; 3 in., $23.30; 4 in., $29.60; 5 in., $40.00; 6 in., $49.00.

Discount 70|10 per cent.

CONDUCTOR ELBOWS—

Plain or corrugated, price per doz.
2 in., $5.25; 3 in., $6.00; 4 in., $10.50; 5 in., $24.00; 6 in., $29.00.

Discount 60 per cent.

UNCHANGED QUOTATIONS ON PIPE FITTINGS

Montreal.

Current quotations on both cast iron and malleable fittings remain unchanged since the revision of a few weeks ago. Business is now described as being of a spasmodic nature, one week showing a fairly active movement, while the next brings reports of a rather dull trade. Unchanged prices and discounts are the following;

PIPE FITTINGS—	Per Cent.
Cast iron fittings	30
Bushings, cast	32
Bushings, malleable	32
Flanges	40
Plugs	30
Flange unions	30
Malleable unions	47
Dart unions, black	33
Do., galvanized	13
Nipples, ⅛ to 4" close and short	50
Do., long	60
Do. 4½ to 8" close and short	40
Do., long	50
Couplings, 4" and under	30
Do., 4½" and larger	10

Pound Goods —	Blk.	Galv
Class A	0 54	0 67
Class B	0 20	0 28
Class C	0 13	0 20

ACTIVITY IN CEMENT IS NOW MODERATE

Montreal

Current quotations on cement are unchanged since the revision at the beginning of the year. Trade is seasonably quiet at present but dealers are anticipating a renewal of activities early next month as contemplated building returns show that a good amount of construction work will commence as soon as the weather permits. Following are unchanged quotations;

CEMENT—Car load lots—

Per bag, f.o.b. cars	0 92
Per bag, delvered	1 00
Less car lots—per bag, f.o.b. yard	1 00
Per bag, delivered	1 10

Less 5 per cent.
Rebate of 20 cents for empty bags.

ONLY SORTING BUSINESS IN WROUGHT PIPE

Montreal

List No. 54 still covers the wrought pipe market locally. Although present quotations are generally considered reasonably low, there are reports of certain mills offering a price concession on attractive orders. The market on the whole however is stated to be fairly steady apart from this condition which has recently crept into the market. The movement of piping continues of fair proportion for the present season of the year, although orders are almost entirely for small quantities.

RADIATORS AND BOILERS ON MODERATE BASIS

Montreal.

During the past two weeks the movement of radiators and boilers has experienced a temporary slackening but not to the extent as to cause any undue concern among manufacturers and distributors. It is stated that there is still a fair amount of building under construction that will require supplies in the earlier spring months, and business should remain fairly active until the later spring and summer season, when supplies are always more in demand. Quotations on all lines remain unchanged with the market said to be steady to firm since the revision at the opening of the New Year.

Radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

45 in. to 38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60. Discount, 59% for hot water and 60% for steam.

Wall Radiators—5 ft., $1.15; 6 ft., $1.10; 7 ft., $1.05; 9 ft., $1.05; 12 ft., $1.05. Discount 56%.

Boilers.—Round hot water boilers, low base only (high base discontinued) sizes from 0 to 10, 64 per cent. off list.

Square or sectional hot water or steam boilers, 15-in., 20 per cent.

For Ontario Government trimmings add 5 per cent.

Square or sectional water boilers, 19-in to 36-in. 20 per cent. off list.

Square or sectional steam boilers, 19-in. to 36-in., 20 per cent. Ontario Govt. trimmings. 10 per cent.

Round steam boilers, standard trimmings, 28 per cent. off. Ontario Government trimmings, 25 per cent.

All prices f.o.b. Toronto, Montreal, Guelph, Hamilton, St. Catharines or Brantford.

SAP BUCKETS NOW BEING SHIPPED

Montreal

Shipments of sap buckets are now being made from manufacturers' and jobbers' warehouses. Booked orders for these supplies up to the present have only been of fair proportion. Quebec territories, where the sugar making industry is carried on more extensively showing only fair results. The sale of these goods depends entirely upon the opening of the season next month or early in April, and dealers have not felt disposed to place their orders until a later date when the actual demand will be felt. Quotations on both buckets and spouts remain unchanged at opening prices, named a few weeks ago.

SAP BUCKETS—
Straight pattern, per 100:—No. 7, $13.80; No. 8, $15.00; No. 9, $16.80; No. 12, $18.00; No. 16, $21.60.
Galvanized straight:—No. 9, $23.00; No. 12, $27.00; No. 16, $31.00.
Western, (flaring) pattern:—6 qt., $13.50; 10 qt., $18.00.
Frontenac:—10 qt., $19.00.
Galvanized western:—10 qt., $27.00.
Spouts:—Sterling, $20.00; Eureka, $15.00 per 1000
Square 1-gal. syrup cans, $16.75 per 100.

CLOSET QUOTATIONS NOW PURELY NOMINAL

Montreal

Local quotations on closet outfits are nominally unchanged, with very little business now being transacted. When approached in connection with easier prices appearing in other markets, one local dealer stated that while local quotations remain nominally unchanged, slightly lower levels were quoted in some quarters for quantity buying. Unchanged net prices are as follows:

CLOSET OUTFITS—	
Closet, standard outfit	27 50
Do., with post hinge seat	28 50
Do., white vitro, vitreous china or enameled iron, with wash-down bowl and oak or mahogany post hinge seat	30 50
Do., reversible trap bowl, less spud	12 75
Do., add for siphon jet bowl	7 00
Do., for ⅜ in. valve on supply pipe	1 50
Deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	10 50
Do., reversible trap bowl, less spud	11 50
Do., siphon jet bowl, less spud	19 00
Do., Richelieu" bowl	9 00
Do., extra for spud	0 60
Do., oak, or oak-vitro tank, with fittings, less seat	14 25
Do., wood strip seat and cover	3 55
Do., post hinge seat and cover	4 25
Do., add for bar hinge	No extra
Do., white vitro, vitreous china, or enameled iron tank, with fittings, flush elbow and supplies less seat	18 50
Do., Vitrious China	20 00

SMALLER CONSTRUCTION NOW REQUIRING ENAMELLED WARE

Montreal

Current business in enamelled ware is still described as quiet, but not exceptionally so for this season of the year. There is a fair amount of building under construction, particularly of the smaller class, and this is now requiring supplies. Quotations are nominally unchanged at 33-1/3 per cent. off list prices, although there are certain price concessions made, especially for fair sized orders. Following are list prices and discounts:

Sinks, roll rim—			
18 x 30			$23 00
Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$ 7 50	$ 7 40	$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide			51 40
Bath tubs, 5½ feet			57 10
Lavatories—			
17x19 in. Apron F139 or P4045			15 30
18x24 in. Apron F154 or P3845 or P3847			23 60
18x21 in. Apron F169 or P4205			17 60
17x19 in. Roll rim, F241 or P4845			12 60

Less 33 1-3 per cent.

RE-ACTION MAY DEVELOP IN INGOT METALS

Montreal

Quietness still prevails in the ingot metal markets, with few changes in prices, and the recent declines seem to

be nearly completed for the present. What the future will bring forth is difficult to say, but present prices are certainly very low and a revision upward would not be altogether surprising.

TIN.—Tin has again reached a point very near the low level touched in August last, and it shows a decline of about £22 as compared with six weeks ago. This would seem to be a very safe level. Supplies, however, are still ample and demand is only fair, so that there may not be any particular recovery as yet. Stock price 36½ cents.

COPPER.—London has been weak, partly owing to advance in exchange and also owing to large supplies of recovered metal. New York has also been lower, but producers are again firmer in their ideas and some of the distress copper has been taken off the market. Local market is quiet with prices slightly easier at 17 cents for electro, and 16¾ cents for casting.

LEAD.—London has been much weaker, but the American market remains steady and there is little change on this side. The feature of the past few months has been the consistent demand for this metal, which has helped to stabilize prices. Local market is quoted at 7 cents.

SPELTER.—The London market has again been lower, chiefly owing to the advance in exchange, but East St. Louis seems to be more steady at $4.50 for spot, and this is probably near the low point on this movement. With present price on ore there is little profit to smelters at this figure. Local market is quiet at 7¼ cents.

ANTIMONY.—There is nothing new about this metal as it is dull in sympathy with others, with very little demand. Quotations are unchanged, Chinese being quoted at 6¾ cts., high grade English at 7¾ cts.

ALUMINUM.—This metal still fails to produce a feature in the market, but remains very dull with quotations somewhat easier at 25 cents.

TORONTO MARKETS

TORONTO, February 14.—Reductions in galvanized sheets, asbestos products, and plumbers' oakum, provide the features of the current market reports. Other revisions to lower price levels cover bar iron and steel, brass and copper wire, Trimo and Stillson wrenches, and the higher grades of white wastes. The decline on gas stoves is now more general, with easier prices on certain scrap materials. The tendency in primary copper stages has also reacted, while ingot metals are generally dull and easier.

EASIER PRICE LEVELS ON ASBESTOS PRODUCTS

Toronto.

The trend of the asbestos market since the commencement of the present year has been decidedly downward. The average decline on these products has registered in the neighbourhood of 25 per cent., and the present level is stated as being on a more uniform basis for the anticipated volume of seasonal trade. Asbestos sheathing attracts particular attention with a reduction of $2.00 per 100 lbs., this now being quoted at $8.00 per cwt. Discounts now in effect covering other asbestos products are as follows:

ASBESTOS PRODUCTS—

PIPE COVERING—

Air cell, 4 ply	55 per cent. off list.
Air cell, 3 ply	60 per cent off list.
Air cell 2 ply	65% off standard list.
Boiler Covering	$1.90 per bag. F.o.b. Toronto.
Asbestos Sheathing	$8.00 per 100 lbs.

REVISED DISCOUNT NOTED ON STILLSON WRENCHES

Toronto.

Another revision has been made on the Canadian pattern Stillson wrenches. The new discount is 55 per cent. off list, compared with the previous quotation of 52½ off.

FURTHER REDUCTION NOTED ON PLUMBERS' OAKUM

Toronto.

A reduction of approximately 50 cents per 100 lbs. has been recorded in some quarters on plumbers oakum. The revised quotation is $6.50 per 100 lbs. in 50-lb. bales.

ANTICIPATE IMPROVEMENT IN SOIL PIPE TRADE

Toronto.

Conditions in the soil pipe market are nominally unchanged, with discounts on both soil pipe and fittings remaining at the revised levels quoted at the commencement of the year. Weather conditions are at present confining the market for these products, but anticipations of a good season in the building industry are expected to be generally reflected in an improvement in the future tone. Following are local current discounts:

SOIL PIPE—

2 inch	40 per cent.
3 inch	40 per cent.
4 inch	40-5 per cent.
5 and 6 inch	40 per cent.
8 inch	net

FITTINGS—

2 to 6 inch	50|5 per cent.
8 inch	net

QUIET CONDITIONS EXIST IN RANGE BOILERS

Toronto.

There have been few developments recorded in the range boiler market since the adoption of the new list prices and discounts. Although some distributors are stated as still maintaining the previous net prices on these products, yet it is noticeable that the quotation on the 30 gallon standard size is the same in each case. It is thought that the revised list will be uniformly accepted in the near future. Current trade is of a spotty character in this line, with dealers stating that price shading seems to have been overcome for the moment, there being no attractive business to shade prices for.

RANGE BOILERS

Size.	List Price.
5-gallon	$13 50
12-gallon	14 00
18-gallon	15 00
25-gallon	16 50
30-gallon	17 50
35-gallon	20 50
40-gallon	22 75
52-gallon	38 00
66-gallon	60 75
82-gallon	74 00
100-gallon	103 00
120-gallon	117 00
144-gallon	164 00
168-gallon	187 00
192-gallon	210 00

Discounts, Standard weight, 50 per cent.
Extra heavy, 40 per cent.

LEAD PRODUCT PRICES REFLECT BASIC TRENDS

Toronto.

There has been no change recorded in prices on lead and zinc products, but recent developments on the primary metal markets attract special attention. Tin prices are considerably easier, and a similar trend has recently been apparent in spelter. Lead quotations, however, are holding their own, this metal awaiting an improved foreign inquiry, where current stocks are described as low. Should this fail to materialize, some revisions in quotations on these finished products are claimed to be more or less likely. Solder prices are fairly firm, however, and the markets in general await future developments in primary centres:

LEAD AND ZINC GOODS—	
Lead, pipe, list, per lb.	0 12½
Lead, waste pipe, list, per lb.	0 13½
Do., over 8 in., list, per lb.	0 14½
Lead pipe is subject to a discount of 10 per cent.	
Lead traps and bends,	10 per cent.
Lead sheets, 4 to 6 lbs., sq. ft. in rolls, lb	0 09½
Cut sheets, ½c to ¾c lb. extra and cut 1-¾ inch	26 00
sheets to size, 1c lb. extra.	
Solder wire, per lb.	0 32½
Do., commercial, lb.	0 22½
Do., strictly, lb.	0 24½
Do., guaranteed, lb.	0 27½
Do., wiping, lb.	0 22½
Zinc sheets, per lb.	0 12

EASIER TENDENCY IN PRIMARY COPPER STAGE

Toronto

The current market is described as quiet in copper and brass products, these metals in the primary stage having developed an easier tendency. Manufacturers of copper and brass sheets, tubing and rods are credited with the expression that "there is nothing discouraging in the present situation." Although trade is of a quiet nature, expectations generally prevail as to an improved volume of business in the near future. Following are current prices:

BRASS—	
Sheets base, per lb.	$ 0 23
Rods, base, per lb.	0 20
Tubing, base, per lb.	0 25
COPPER —	
Rods, base, per lb.	0 29
Soft sheets, plain, 1 oz. and heavier, lb.	0 30
Do., plain tinned, 16 oz. and heavier, lb.	0 37
Do., polished and tinned, 16 oz. and heavier, lb.	0 42
Tubing	0 29

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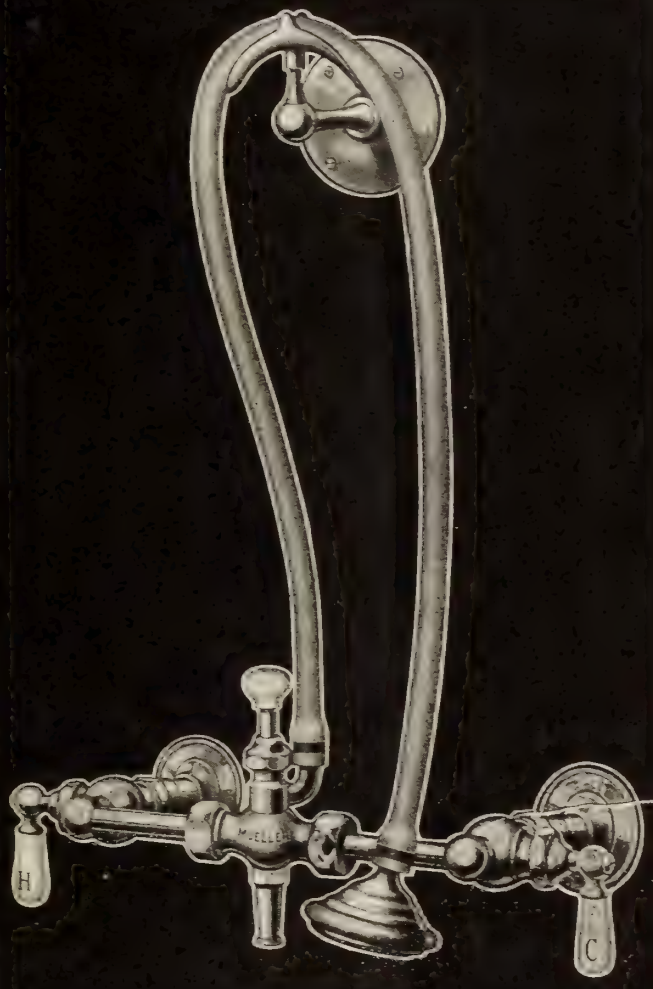

MUELLER Sink and Lavatory Combination

Of standard Rapidac construction, embodying the celebrated Seven Points of Supremacy, this fixture is one of the most popular MUELLER designs.

It delivers hot, cold or tempered water—either in a solid stream from the spout, or in a spray from the flexible nozzle.

A REAL MONEY-MAKER FOR PLUMBERS

Wise plumbers display this popular MUELLER Fixture in their show windows—as an example of the new improvements in plumbing—and with it secure additional business from old and new customers alike.

Write for catalog and prices. Mail orders given prompt attention.

H. MUELLER MFG. CO., LIMITED, SARNIA, ONT.

Water, Plumbing and Gas Brass Goods and Tools.

American Factory at Decatur, Ill., U. S. A. Branches, New York and San Francisco

Mueller Metals Co., Pt. Huron, Mich., Makers of "Red Tip" Brass Rod; Brass and Copper Tubing; Forgings and Castings in Brass, Bronze and Aluminum; Die Castings in White Metal and Aluminum; also Screw Machined Products.

TORONTO MARKETS

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SMALL ORDERS PREVAIL IN COMPRESSION GOODS

Toronto.

Quotations on compression goods are at present remaining at the recently revised levels. Trade in these products has been chiefly of a sorting character, with distributors noting some slight improvement in the number of orders since the completion of inventory period. The total volume, however, is described as small. Prospects for a more extensive construction program generally through spring and summer seasons is looked upon as the forerunner of better activity in compression work, and the sign of a larger volume of business in the near future. Following are current quotations:

VALVES—	Per cent.
Compression work, standard	43
Fuller work, standard	30
Bath cocks, compression	32
Do., Fuller	25
Flatway stop and wastecocks, stand'd	54
Roundway stop and waste cocks, std.	46
Brass steam cocks, standard	40
Globe, angle and check valves, std.	25
Mueller globe, angle and check	25
Mueller composition disc steam valves	33
J. M. T. valves, screwed	20|10
J. M. T. C., screwed	25|10
J. M. T. gate valves, screwed	25|10
Jenkins gate or straightway, screwed	25|10
Jenkins globe, screwed	19|10
Radiator valves, standard	58
Do., removable disc	58
Emco, J. D., rad. valves, screwed	33
Emco std. check valves, screwed	25
Emco swing check, ⅜" and ½"	40
Do., Do., other sizes	33
Webber gate valves, screwed	30
Emco globe valves, std., screwed	25
Emco globe valves, J. D., screwed	33
Basin cocks—	
No. 0 and 1, Fuller pattern	30
Quick opening No. 3633	43

LOWER PRICES DEVELOP BUSINESS IN TUBES

Toronto

Since the introduction of the new lower prices on boiler tubes, business in these products is stated to have registered some signs of improvement. The volume of inquiry for small repair orders has increased, while trade of a sorting nature has materialized in some quarters. The following quotations represent the average prices on the local markets:

BOILER TUBES

Size	Seamless	Lapweld
1 inch	24 75	——.
1-¼ inch	24 50	.....
1-½ inch	24 00	.....
2 inch	24 50	20 00
2-¼ inch	27 75	23 00
2-½ inch	32 50	23 75
3 inch	40 00	30 00.
3½ inch	50 00	32 50
4 inch	52 50	34 25
4½ inch	65 00	43 50

FURTHER REDUCTIONS ON GALVANIZED SHEETS

Toronto

A reduction of approximately 25 cents per 100 lbs. has been announced on galvanized sheets. This change results from the primary conditions, it being noted that galvanized has been so little sought during the past few weeks in southern centres that price concessions on these products had been recorded. Buyers continue cautious, and the irregularity in American price levels has been reflected in the easing of domestic quotations. While it is yet early for Spring business, a few bright spots are reported from time to time. The volume of inquiry is described as more encouraging as to the impetus expected from the seasonal buying usually evident during the next two months. Following are the revised quotations:

BLUE ANNEALED—		
10 gauge, base	3 75	4 50
12 gauge	3 80	4 55
14 gauge	3 85	4 60
16 gauge	3 90	4 65
BLACK—		
18-20 gauge	4 30	5 05
22-24 gauge	4 35	5 10
26 gauge	4 40	5 15
28 gauge	4 50	5 25

Charge of 25c. per 100 lbs., is made for less than case lots. An extra 10c per 100 lbs. is also charged on sheets 26 in. wide.

GALVANIZED—	Queen's Head.	Fleur-de-lis.
28 gauge	8 00	7 50
26 gauge	7 75	7 25
24 gauge	7 35	6 85
22 gauge	6 90	6 40
18 and 20 gauge	6 75	6 25
Premier and Apollo—		
10¾ oz.	6 00	6 75
U. S. 28, base	5 60	6 35
U. S. 26	5 30	6 05
22 and 24	5 15	5 90
18 and 20	5 00	5 75
16	4 85	5 60
12 and 14	4 70	5 45

An extra is now charged on galvanized sheets, 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20 cents per 100 pounds. Other gauges show no change for different widths.

An extra 40 cents per 100 lbs., is charged for Keystone and Premier brands copper-bearing sheets.

PLATES, CANADA—	Per box
Dull, 60 sheets	5 30
Ordinary, 52 sheets	5 25
PLATES, COKE TIN—	
IC, 20 x 28, 112 sheets	13 50
IX, 20 x 28, 112 sheets	16 50
IX, 20 x 28, 56 sheets	9 00
PLATES, CHARCOAL TIN —	
IX, 20 x 28, 112 sheets	14 00
IXX, 20 x 28, 56 sheets	16 00
PLATES, TERNE—	
IC, 14 x 20, 112 sheets	12 00

LOWER PRICE LEVELS ON BAR IRON AND STEEL

Toronto.

As announced in the last issue of Sanitary Engineer easier prices have now appeared on bar iron and steel. The sagging quotations recently noted resulted in lower levels being generally adopted, a condition which is attributed to the quiet season coupled with the resultant price shading for moderate sized orders. The extent of the reduction amounts to approximately 15 cents per 100 lbs., on the different grades although in some cases a lowering of 25 cents is noted. Following are the revised level

IRON AND STEEL

Mild steel bars, base	2 85
Midl steel bands, 3 16 in. base	3 35
Bar iron, base	2 85
Angle iron, base	2 95
Horseshoe iron	3 60
Tire steel	3 35
Spring steel	5 50
Crucible cast sheet steel	30 00
Mining drill steel	18 50
Cast tool steel, medium	18 00
Cast tool steel, high grade	31 00
Sleigh shoe steel	2 85
Norway iron	12 50
Toe caulk iron	4 00
Hoop steel	3 75

MORE INQUIRIES REPORTED FOR PIPE FITTINGS

Toronto

Quotations on pipe fittings are generally being maintained at the recently revised levels, with current business of a spasmodic nature. The anticipated development of spring business has not yet materialized, distributors admitting that it is early in the season for any marked improvement. There has been reported, however, a larger number of inquiries, but whether this is due to potential business, or is a result of the many recent price changes, is hard to determine. Following are the current prices, with no change having been recorded as yet on Dart unions, or wrought nipples and couplings:

PIPE FITTINGS—	Per cent.
Cast iron fittings	30
Plugs, cast iron	30
Oo., solid	30
Do., countersink	30
Bushings, malle.	32
Do., cast	32
Unions, ¼ in. to 2 in.	47
Do., 8 in., 2¼ to 4 in.	47
Flanged unions, std.	30
Flanged fittings	30
Dart unions, blk., ¼ to 2 in.	33½
Do., ⅛ in., 2¼ to 4 in.	23
Do., galvd., add to black	30
Nipples, blk., and galvd. ⅛ to 4 in. close and short	50
Do., 4½ in. and larger	40
Do., long, ⅛ in. to 4 in.	60
Do., 4½ in. and larger	50
Do., running thread	30
Couplings, 4 in. and under	30
Do., 4½ in. and larger	10

MALLEABLE FITTINGS—		
ClassA	0 54	0 67
Class B	0 29	0 28
Class C	0 13	0 20

BRASS AND COPPER WIRE SLIGHTLY REDUCED

Toronto.

A decline of between 2 and 2½ per cent. has been announced by the manufacturers in prices on brass and copper wiring. This change reflects the recent easing of exchange rates and reduction in similar costs.

DECLINE ON GAS STOVES NOW MORE UNIFORM

Toronto

Some lower quotations on gas stoves are now generally announced by manufacturers of these products. Easier levels on certain makes have been effective for a few weeks, this change now being more uniform. The extent of the decline is approximately 7½ per cent. This reduction is expected to stimulate the volume of spring booking orders.

ANOTHER REVISION IN TRIMO WRENCH PRICES

Toronto.

It is announced that another revision has been made in the discounts on Trimo wrenches, and prices have therefore been slightly advanced on most sizes.

VARIANCE IN PRICES ON CLOSET OUTFITS

Toronto

The market covering closet combinations and fixtures is chiefly attracted at present by the variance in quotations given on the standard oak outfit. This price was recently reduced to $26 by certain local distributors, and is still being maintained. On the other hand, other market sources are stating a level of $27.50, with the assurance that quotations will even up at this level in the near future. However, the following

Continued on page 32

PIPE FITTINGS

Domestic **Export**

"IMICO" Pipe Fittings

are known throughout the British Empire
for the quality they possess

Malleable Fittings

of our brand mean fittings made of refined air furnace Malleable Iron, properly annealed and threaded to gauge.

Cast Iron Fittings

stamped with our trade mark denote fittings made of the highest quality of Cast Iron, reamed and tapped with perfect threads.

International Malleable Iron Company, Limited

GUELPH, ONTARIO

Representatives:

Vancouver, B.C.—Messrs. Ames Bros., 325 Howe St.
Winnipeg, Man.—Messrs. Harry F. Moulden & Son, Confederation Life Bldg.
St. John, N.B.—Messrs. H. G. Rogers, Limited, 147 Prince William St.
Halifax—Mr. Geo. D. Hatfield, Bedford Chambers.

TORONTO MARKETS

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price levels were obtainable at the time of going to press:

CLOSET COMBINATIONS, low down	each
Closet, standard outfit, oak	$26 00
Do., with post hinge seat	26 75
Do., mahogany Vitro or Pussyfoot, with mahogany post hinge seat and cover	28 75
Do., vitreous china, with oak post hinge seat and cover	29 25
Do., vitreous china, with mahogany post hinge seat and cover	29 50
Do., white Vitro or Pussyfoot, with maoak post hinge seat and cover	29 25
Do., white Vitro or Pussyfot, with mahogany post hinge seat and cover	29 50
Do., enamelled iron tank with oak post hinge seat and cover	29 25
Do., enamelled iron tank with mahogany post hinge sea and cover	29 50
Additions or reductions to above	
Add for reversible trap bowl	1 25
Add for syphon jet bowl	7 00
For ⅜ in. valve on supply pipe	1 50
Deduct for supply pipe	0 70
Deduct for floor flange and bolts	0 80
CLOSET BOWLS—	
Washdown bowl, less spud	10 00
Reversible trap bowl, less spud	11 25
Syphon jet bowl, less spud	17 00
"Richelieu" bowl	10 50
CLOSET TANKS, low down	
Oak, Vitro or Pussyfoot tank with fittings, less seat	13 10
White Vitro or Pussyfoot tank with fittings, flush elbow and supply	15 25
Vitreous china tank with fittings, flush elbow and supply	18 00
Enamelled iron tank with fittings, flush elbow and supply	18 00
CLOSET SEATS—	
Oak wood strip seat and cover	3 25
Oak post hinge seat and cover	4 00
Mahogany finish post hinge seat and cover	4 25

MODERATE ACTIVITY IN ENAMELLED WARES

Toronto

The finishing of buildings which were commenced last fall coupled with erection of many small dwellings during the current season now reflects a moderate tone of activity in enamelled ware. Distributors of these products are generally anticipating a good season during 1922, owing to the expected stimulation in construction work generally. Prices remain unchanged, with the following quotations and discounts at present in effect.

ENAMELLED WARE—	
Enamelled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.	51 40
Do., 5½ ft.	57 10
Lavatories—	
17x10" Apron F139 or P4045	15 30
18x24" Apron F154 or P3845 or P3847	23 60
18x21" Apron F169 or P4205	17 60
18 x 21" Roll Rim, F197, F199 or P4655-6	15 40
17 x 19" Roll Rim, F241 or P4345	12 60
Sinks, Roll Rim, 16x24 in.	18 10
Do., 18 x 30 in.	23 00
Do., 20 x 30 in.	24 70

Sinks, Flat Rim—	1 only	2 only	3 only
16 x 24	$7 60	$7 70	$7 80
18 x 30	8 50	8 60	8 70
20 x 30	9 70	9 80	9 90

Above prices list, less 33 1-3 per cent.

All steel enamel baths, 4 and 4½ ft.	$14 00
Do., 5 ft.	15 00
Do., 5½ ft.	16 75

These quotations are net.

BUILDING IS REFLECTED IN RADIATOR SALES

Toronto.

Business in radiators and boilers is stated to be on a moderate basis, with the proportion of current building activity practically governing the degree of present sales in these products. The market is quiet, but improvement is looked for in the near future, as prospects are evident for a generous building programme during the coming seasons. A number of buildings which were commenced last fall, are now being completed, while some new buildings have also reached the stage where radiation is required. Following are unchanged quotations.

RADIATORS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60.

Discount on 2, 3, 4 and 5-column standard sizes, 59 per cent. for water and 60 per cent. for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 51 per cent. for water and 52 per cent. for steam.

Discounts on 1-column hospital size, water 33 per cent.; steam 34 per cent.

Wall radiators—5 ft. $1.15; 6 ft. $1.10; 7 ft. $1.05; 9 ft., $1.05; 12 ft., $1.05. Discount 56 per cent.

FURTHER DECLINE NOTED ON WHITE WASTES

Toronto

A further reduction has been announced on some grades of white cotton wastes, and also on the cream polishing. The extent of this additional decline is one cent on the cream polishing, and one half on the finer grades of white waste. This change is attributed to the condition of the raw cotton markets, and places prices on these products on a more uniform basis. Following are the revised quotations:

Cream, polishing	0 18
White, XXX	0 18
XX	0 16
X	0 15
XC	0 14
XXX, extra	0 16
XX, grand	0 15
XLCR	0 14
X, Empire	0 13
X press	0 11½
Colored, No. 1	0 13
No. 17	0 12
No. 1A	0 11
No. 1B	0 10
Fancy	0 13½
Lion	0 12
Standard	0 10½
Popular	0 09
Keen	0 07½

Above lines subject to trade discount for quantity.

EARLY ACTIVITY IN CEMENT REQUIREMENTS

Toronto

The degree of construction work in general is being reflected in sales of cement. Early promises of an extensive building programme for the spring and summer seasons, is indicated by prevailing activity in construction circles generally and a brisk movement in both city and country is expected to develop. Prices remain at the following levels:

CEMENT—

Car load lots.	Toronto.
Per barrel, delivered	3 70
Less car lots	
Per barrel, f.o.b. yard	4 30
Per barrel, delivered	4 50

Single bags, $1.15 each; 4 bags to barrel.
Extre charge of $1.50 per load on less than 24 bag lots.
Rebate of 20 cents for empty sacks.

QUIET CONDITIONS IN CORRUGATED SHEETS

Toronto

Due to the recent fluctuations in the flat sheet markets, a slightly easier tendency is also noted in some quarters in the market for corrugated sheets. These products, however, are usually in moderate evidence at this season of the year, current weather conditions handicapping activities in these lines. Prices and discounts at present remain unchanged at the following levels:

CORRUGATED SHEETS—	Per 100 Sq. Ft.
No. 28 gauge	$6 50
No. 26 gauge	7 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50

Less 10 per cent.

Lighter than 24 gauge and wider than 27 inches, 75c a square extra.

BETTER FEELING NOTED IN PIPE MARKETS

Toronto

Inquiries for stee piping are described as slightly more numerous, although the volume of current business is not large. Since the completion of inventory work, some sorting orders have been reported. The general situation, however, both in foreign and domestic pipe markets is described as offering a fair amount of small business with inquiries in steady proportion. Here and there are noted spasmodic signs that larger sizes of pipe contain prospects of improvement. There are some reports circulating that in spite of the prevailing low levels, certain independent steel mills in the south are slightly shading prices on attractive orders. The list No. 54, however, continues to cover the local markets:

WROUGHT PIPE

Price List No. 54. December 22, 1921.

Standard Buttweld Pipe S/C

Per 100 feet.

	Steel		Gen. Wrot. Iron	
Size	Blk.	Galv.	Blk.	Galv.
⅛ in.	$ 6 00	$ 8 00	$	$ ....
¼ in.	3 84	5 94	7 20	9 30
⅜ in.	3 84	5 94	7 20	9 30
½ in.	4 85	6 46	7 31	8 93
¾ in.	5 87	7 71	8 86	10 70
1 in.	8 16	11 05	12 58	15 30
1¼ in.	11 04	14 95	17 02	20 70
1½ in.	13 20	17 88	20 35	24 75
2 in.	17 76	24 05	27 38	33 30
2½ in.	28 08	38 03	.....	.....
3 in.	36 72	49 73	....	....
3½ in.	47 84	63 48	.....	.....
4 in.	56 68	75 21	.....	.....

Standard Lapweld Pipe S/C

Per 100 feet.

	Steel		Gen. Wrot. Iron	
Size	Blk.	Galv.	Blk.	Galv.
2 in.	$21 46	$27 38	$31 08	$37 00
2½ in.	31 59	40 95	46 80	56 16
3 in.	41 31	53 55	61 20	73 44
3½ in.	48 76	65 32	72 68	89 24
4 in.	57 77	77 39	86 11	105 73
4½ in.	66 04	86 36	1 04	1 24
5 in.	76 96	100 64	1 21	1 45
6 in.	1 00	1 31	1 57	1 88
7 in.	1 33	1 76	2 02	2 45
8L in.	1 40	1 85	2 13	2 58
8 in.	1 61	2 13	2 45	2 97
9 in.	1 97	2 59	2 97	3 59
10L in.	1 82	2 40	2 75	3 33
10 in.	2 35	3 09	3 54	4 28

ONLY MODERATE TRADE IN SCRAP MATERIALS

Toronto

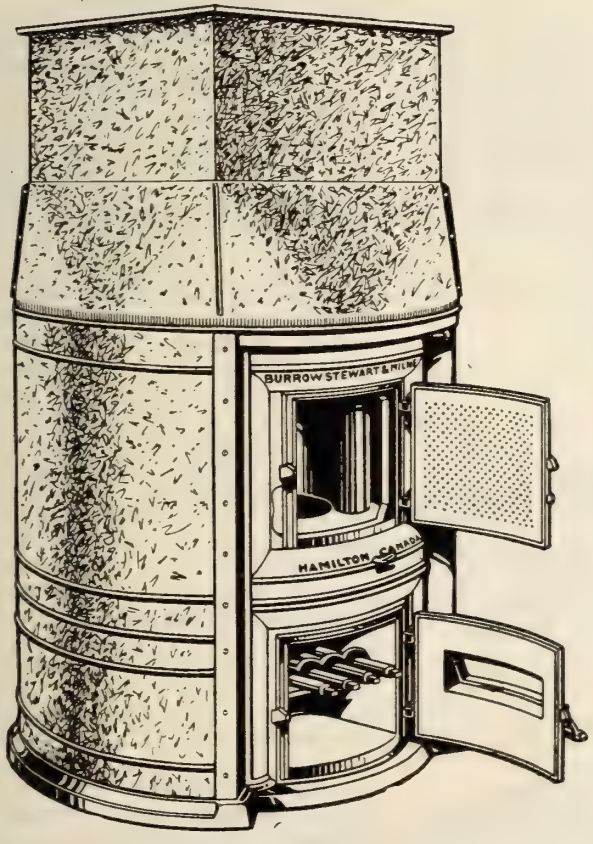
Most divisions of the waste material markets have been slow as regards either the volume of transactions or the amount of interest. Scrap iron and steel are still moving spasmodically, with prices generally unchanged. Current business is mainly confined to immediate and nearby requirements. Interest in copper grades has suffered a relapse due to the easier tone in virgin copper prices,

Continued on page 34

A Pipeless Furnace Second to None

JEWEL
Pipeless Furnace

Founded first, on an incomparable design, then made from unexcelled material, and finally constructed by selected, skilled workmen, who are supervised by experts, it is small wonder that the Jewel leads the pipeless furnace field.



Whenever you recommend and install a Jewel you have definitely added to your list of satisfied clients and the successful future of your business.

Manufactured by

The Burrow, Stewart & Milne Co.
LIMITED
Hamilton - Ontario

TORONTO MARKETS

Continued from page 32

while other metals have just about stood still. The following are averages of local dealers' buying prices for fairly large quantities:

SCRAP MATERIALS—

Scrap Iron		
Gross Tons —		
Heavy melting steel (Hamilton)	11 50	$12 00
Borings and turnings	2 00	3 00
Rerolling rails	10 50	11 50
Scrap pipe	6 00	7 00
No. 1 railroad wrought	10 25	11 25
Steel turnings (Hamilton)	6 50	7 50
Agricultural malleable	10 00	11 00
Railroad malleable	11 00	12 00
Net tons —		
No. 1 cast	15 75	16 75
Stove plate	11 50	12 00
Grate bars	10 50	11 00
Standard car wheels	13 50	14 00
Scrap Metals.		
Heavy copper and wire	10 25	10 50
Light copper	8 00	8 50
No. 1 compositon	9 00	9 50
No. 1 comp. turnings	6 00	6 50
Light brass	3 00	3 50
Heavy yellow brass	5 50	6 00
Heavy lead	4 00	4 50
Tea lead	2 00	2 50
Scrap zinc	3 75	4 00
Scrap Rubber.		
Boots and shoes	2 50	3 00
Lumbermen's ruber boots	1 50	2 00
Auto tires	0 50	1 00
Solid tires	0 75	1 25

IMPROVEMENT EXPECTED IN EAVESTROUGH ORDERS

Toronto.

Improvement in the volume of eavestrough and conductor pipe sales is looked for in the near future by manufacturers and distributors of these products. The advent of spring weather has stimulated early activity in advancing construction programmes and more extensive developments in the direction of building homes and other erections are generally expected. Quotations on these lines are being maintained at the current discount levels given as follows:

TROUGH (EAVE)—

O. G. Square Bead and half round. Size in girth: Per 100 ft.

8 in.	15 90
10 in.	17 70
12 in.	21 20
15 in.	28 80
18 in.	36 50

Less 70 and 10 per cent.

PIPE (CONDUCTOR)—

Plain, round or corrugated.

	Per 100 ft. in 10 ft. lengths.
2 in., in 10 ft. lengths, list	18 40
3 in., in 10 ft. lengths, list	23 30
4 in., in 10 ft. lengths, list	29 60
5 in., in 10 ft. lengths, list	40 00
6 in., in 10 ft. lengths	49 00

Less 70-10 per cent.

ELBOWS (CONDUCTOR)—

2 inch, list	5 25
3 inch, list	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00

Less 60 per cent.

BUYERS' MARKET EXISTS IN INGOT METALS

Toronto

A buyers' market now generally prevails in all the ingot metals. The firmness in copper circles has receded owing to the preparations of producers to resume operations, coupled with the fact that consumers are fairly well supplied for the initial quarter. Other metals have shown some signs of slightly fluctuating, especially in London, but the undertone in most ingots remains more or less unchanged witth prices fairly steady.

WINNIPEG MARKETS

WINNIPEG, February 14.—Price revisions on sanitary and heating materials again feature the current market reports. Lower quotations are announced on both malleable and cast iron pipe fittings, while wrought couplings and nipples have also been placed on easier price levels. Other primary steam-fitting and plumbing goods remain generally at unchanged levels, with few developments recorded. Trade is described as dull in places, with anticipaitons generally in evidence regarding an improved volume of trade during the early Spring period.

LOWER QUOTATIONS APPEAR ON WROUGHT FITTINGS

Winnipeg.

Through a revision in the discounts, quotations on wrought iron pipe fittings are now reduced. The general market tone in these products has been slightly easier, and this change places the new prices on the following discount levels:

WROUGHT IRON NIPPLES—

Class A	65% off
Class B and C	70% off
Union Elbows and Tees	60% off
Boiler Elbows and Couplings	60% off
Unions	45% off
Dart Unions, ¼ and 2 in., 25 and 10%,	
⅛, 2½, 3 3½ and 4 in.	20%
5 and 6 in.	20%
Railing Fittings	50%

LOWER QUOTATIONS ON NIPPLES AND COUPLINGS

Winnipeg.

Revised discount levels have been announced on wrought iron nipples and couplings. This change places these products upon slightly easier price levels. The new discounts are as follows:

WROUGHT COUPLINGS—

⅛ to 4 in. 25%; 4½ and larger, 10%.

WROUGHT IRON SUPPLIES—

Close or short,

4 in. or smaller, 40 and 10%; 4½ in. and larger, 30 and 10%.

Long,

4 in. and smaller, 50 and 10%; 4½ in. and larger, 40 and 10%.

REVISED DISCOUNTS NOTED ON CAST IRON FITTINGS

Winnipeg.

The new discounts now effective on cast iron pipe fittings, places quotations on these lines at a reduced level. Following are the revised discounts:

CAST IRON FITTINGS

Elbows, Tees, Crosses, Return Bends, Caps and Lock Nuts	25%
Reducers	30%
Bushings	30%
Plugs	25%
Drainage Fittings	30 & 10%

LITTLE CHANGE RECORDED IN PIPE MARKETS

Winnipeg.

Little variation has been recorded in the pipe markets, trade developments being of a moderate nature at this season. Wrought iron and steel piping still sells under list No. 54, which became effective last December.

BLACK PIPE

F.O.B.	Winnipeg	Calgary, Edmonton, Lethbridge & Medicine Hat.	Saskatoon.	Regina.	Brandon.
LIST NO. 54.					
⅛	$ 6 25	$ 0 28	$ 0 20	$ 0 17	$ 0 11
¼	4 52	0 47	0 34	0 30	0 19
⅜	4 67	0 62	0 45	0 40	0 26
½	5 95	0 94	0 67	0 59	0 38
¾	7 20	1 25	0 90	0 79	0 51
1	10 04	1 85	1 34	1 17	0 75
1¼	13 60	2 51	1 80	1 57	1 00
1½	16 26	3 01	2 15	1 88	1 21
2	21 88	4 04	2 88	2 52	1 62
2½	34 61	6 40	4 60	4 02	2 68
3	45 26	8 38	6 03	5 28	3 39
3½	58 88	10 12	7 20	6 30	4 05
4	69 75	11 97	8 53	7 46	4 80
4½	81 22	13 91	10 04	8 75	5 62
5	94 73	16 30	11 60	10 15	6 52
6	122 86	21 10	15 00	13 14	8 44
7	181 18	26 14	18 62	16 28	10 46
8L	190 38	27 50	20 00	17 50	11 25
9	267 05	37 60	26 96	23 59	15 16
10L	248 00	35 20	25 60	22 40	14 40

GALVANIZED PIPE

⅛	$ 8 50	$ 0 28	$ 0 20	$ 0 17	$ 0 11
¼	7 04	0 47	0 34	0 30	0 19
⅜	7 09	0 62	0 45	0 40	0 26
½	7 89	0 94	0 67	0 59	0 38
¾	9 41	1 25	0 90	0 79	0 51
1	13 50	1 85	1 34	1 17	0 75
1¼	18 29	2 51	1 80	1 57	1 00
1½	21 87	3 01	2 15	1 88	1 21
2	29 43	4 04	2 88	2 52	1 62
2½	46 54	6 40	4 60	4 02	2 68
3	60 86	8 38	6 03	5 28	3 39
3½	77 65	10 12	7 20	6 30	4 05
4	92 00	11 97	8 53	7 46	4 80
4½	105 60	13 91	10 04	8 75	5 62
5	123 15	16 30	11 60	10 15	6 52
6	159 70	21 10	15 00	13 14	8 44
7	.....	26 14	18 62	16 28	10 45
8	.....	27 50	20 00	17 50	11 22

AMERICAN MILLS NOW UNDERBIDDING GERMAN STEEL COMPETITORS

Toronto

One encouraging feature in the steel industry from the American viewpoint is the fact that United States mills have recently succeeded in underbidding German producers. Serious price competition has been encountered in foreign markets during the last year or two, although German mills being able to take full advantage of lower wage scales and cheaper production costs, and thus secure coveted orders. This situation is now being reversed in some instances, namely on wire and tubular products. Southern producers have recently sold goods to Japan in the face of German competition, and have also secured pipeline orders from Mexican sources. The trend towards recovery in exchange rates, is a considerate factor, but it is also stated that this success would indicate the German prices are slightly rising, while prices on this Continent have been steadily falling for some time past, due to the producers' efforts to lower costs. Any direct stimulation to the American foreign steel trade, reflects in the conditions governing the steel industry in general, and brisk activity in southern circles is usually accompanied by more cheerful optimism and a brighter outlook in Canadian steel business.

Markets

Sanitary Engineer Marketing Reports are eagerly looked for by progressive plumbing and heating Engineers of Canada.

A thorough knowledge of prevailing prices and tendencies in the trade is an absolute necessity for the conduct of any business in these days of frequent price fluctuations.

Sanitary Engineer Marketing Reports are compiled at considerable expense. We are determined to keep them reliable, complete, and up-to-date.

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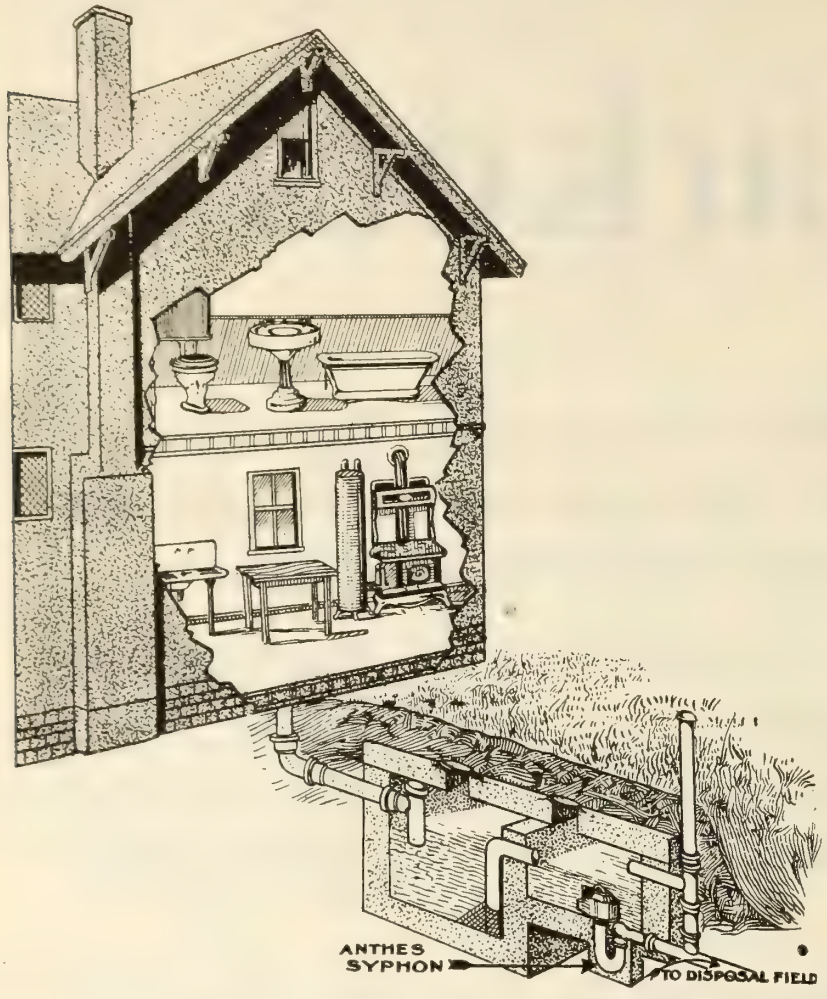

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Bulletin No. 2-It Helps

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Limited

Winnipeg

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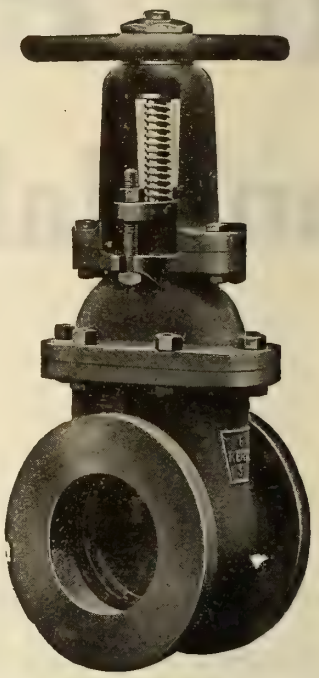
Use Kerr Valves



Kerr Valves make good. For every one installed there is a return of satisfaction and good-will, ample for all concerned. The man who has recommended and installed Kerr Valves is closest to the client, and, naturally, the lion's share of consequent new business goes to him.

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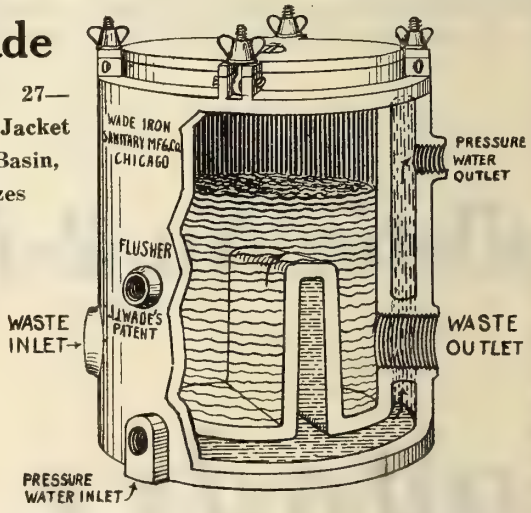
Galt Building
Winnipeg

Wade

B. Fig. 27—Water Jacket Grease Basin, Four Sizes



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Water Jacket Grease Trap pays for itself and installations in hotels and restaurants in short time. Grease is skimmed off and soap is made. Stops all clogging at waste pipes.

A fixture that you can guarantee to meet all sanitary requirements.

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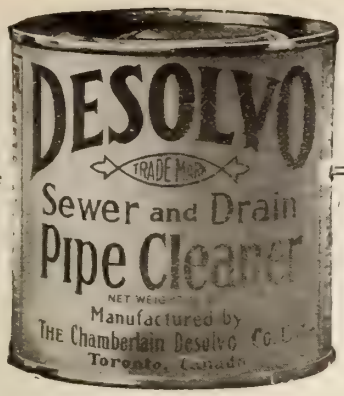

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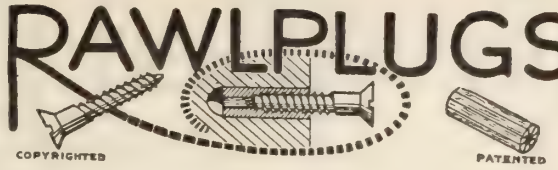

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James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Port Hope Sanitary Mfg. Co., Ltd., Port Hope.
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Lord & Burnham Co., Ltd., Toronto.
Steel & Radiation Ltd., Toronto.
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RADIATOR HANGERS
Healy Ruff Company.

RADIATOR NIPPLES
Fittings Limited, Oshawa.

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Jenkins Bros., Ltd., Montreal, Que.
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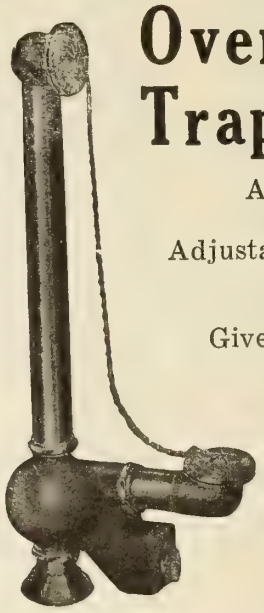


Figure No. 390

All above the floor.

Adjustable, handy, neat and attractive

Gives general satisfaction

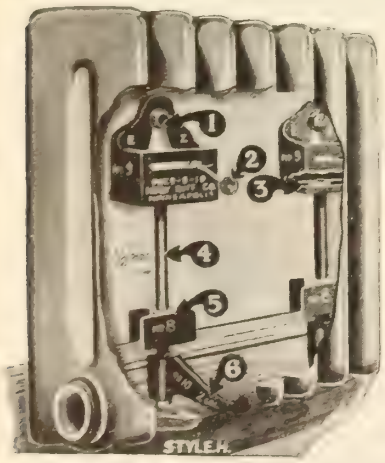
A time saver

Our line of specialties and quality rubber goods does satisfy.

Send us your mail orders

WOLVERINE —LIMITED—

76 Nelson St. **Toronto**



E-Z Radiator Hanger

Manufactured in Canada

(1) One Bolt.
(2) Invisible Washer.
(3) Horizontal Adjustment.

Reasonable in Price

(4) Vertical Adjustment.
(5) Baseboard Adjustment.
(6) Made for Wall and Column Radiation.

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Minneapolis, Minn.

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S. T. Hadley, 304 University Street, Montreal.

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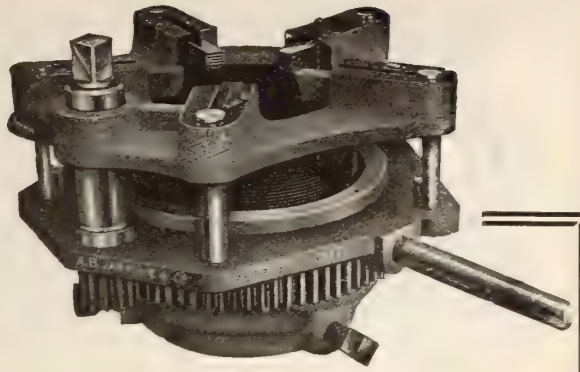

JARDINE

Pipe Threading Tools

REGISTERED J TRADE MARK

Range from 1/8" to 12"

All sizes threaded at one cut. Effective tools, in which the dies open out as the tool advances on the thread, so that the proper taper is made. This relieves friction on the pipe and conserves every ounce of power for cutting. The dies cut only with the cutter mouth.

Beautifully designed machines in which there are no complicated contrivances to get out of order and make trouble; they work easily, smoothly, rapidly and accurately.

One Man Does the Work of Two

A. B. Jardine & Company, Limited, are the sole makers of "Jardine" pipe threading tools and the sole licensees to make and sell "Toledo" tools in Canada.

A. B. Jardine & Co.
Limited

Hespeler **Ontario**

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Sanitary Engineer

Mail this coupon for catalogue and prices.

WROUGHT PIPE

Suitable for the approaching period of building activity, road construction, etc. This is a line of great importance in making successful, profitable contracts. Our C. T. Brand of Wrought Pipe has been

THOROUGHLY INSPECTED

by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes ⅛-in. to 4-in. Black or Galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your Jobber for C. T. Brand Wrought Pipe

Canadian Tube and Steel Products Co., Ltd.

Operating Canadian Tube and Iron Co., Limited
Works at Lachine Canal, Montreal

NO. 1 "TWEED"
Sanitary Closet with mahogany finished seat and lid with nickel-plated hinges.
The special "Tweed" chemical used in connection with the closet, destroys every trace of odor. Easily installed, as no plumbing required.

Out-of-Town Business

Only those who have to live the year around in a locality without city conveniences realize the hardships involved, and it is among these that you can do a profitable business with the

"TWEED" SANITARY CLOSET

A city convenience at a fraction of the cost—anybody can afford one. Compactly packed for shipment and easily handled.

We also make an attractive line of "Tweed" Baths and other home conveniences.

Write for price lists and literature
The Steel Trough & Machine Co., Ltd.
TWEED, ONT., CANADA
LOUIS A. PAYETTE.
304 University St., Montreal
Quebec and Eastern Representative

Easily Cleaned

The APEX Closet Bowl has special features that place it in a class by itself.

Clean-out device located at head of trap. Any obstruction can be located and removed in five minutes without disconnecting from floor or water. **Cannot overflow.** Silent in operation.

Find out all about the APEX before installing another closet bowl.
Canada Patents for sale.

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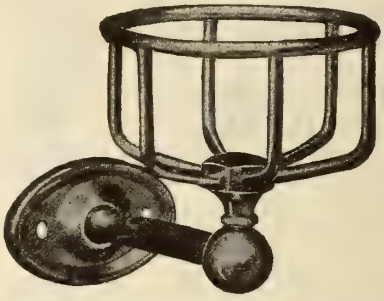
THE GENDRON MFG. CO. Ltd., TORONTO



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Towel Bars
Soap Dishes
Paper Holders
Glass Shelves
Mirrors

THE GENDRON MFG. CO. Ltd., TORONTO

BULL DOG BRAND

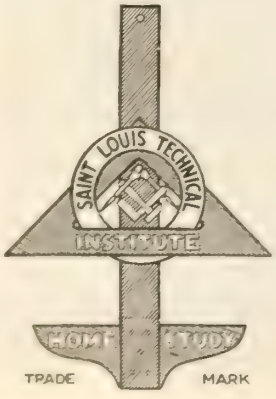
Seats and Tanks

HOURD & CO., Limited

LONDON, CAN.

Tapped Closet Bend

Easier to attach
More permanent
Cost less



ATTENTION! Contract Shops, Stores Employers, Clerks, Mechanics, etc.

Our new HOME STUDY course in BUSINESS ADMINISTRATION is now ready for the trade. It teaches you the most modern methods of Business.
Learn to extend your Markets; enlarge your Business; Learn to adjust all the business combinations to the limit. We build on top of your present Ability and give you a business training equal to the best.
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Full information free.

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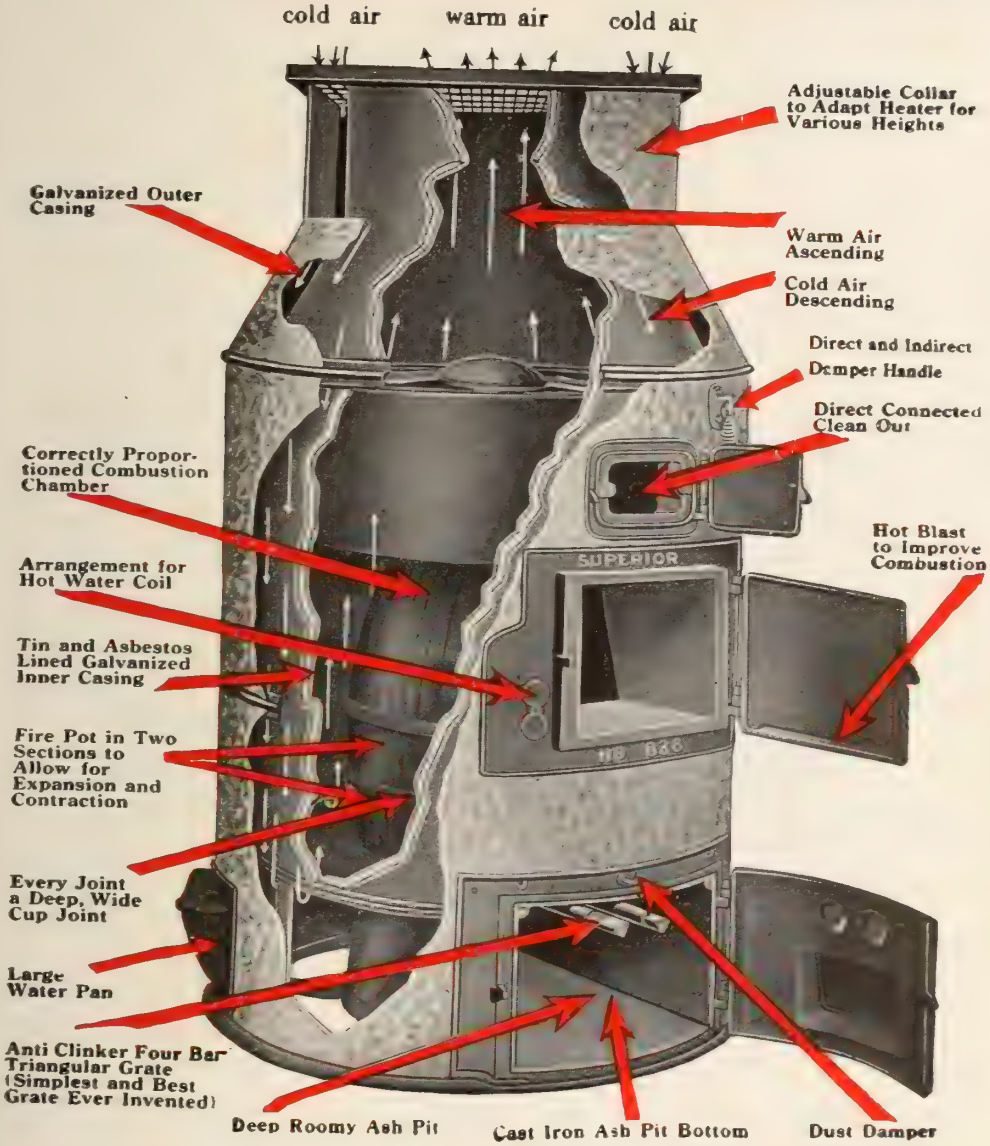
Pilot Superior Pipeless Furnaces


cold air
warm air
cold air
Adjustable Collar to Adapt Heater for Various Heights
Galvanized Outer Casing
Warm Air Ascending
Cold Air Descending
Direct and Indirect Damper Handle
Direct Connected Clean Out
Correctly Proportioned Combustion Chamber
Hot Blast to Improve Combustion
Arrangement for Hot Water Coil
Tin and Asbestos Lined Galvanized Inner Casing
Fire Pot in Two Sections to Allow for Expansion and Contraction
Every Joint a Deep, Wide Cup Joint
Large Water Pan
Anti Clinker Four Bar Triangular Grate (Simplest and Best Grate Ever Invented)
Deep Roomy Ash Pit
Cast Iron Ash Pit Bottom
Dust Damper
SUPERIOR

When you specify, or install, Pilot Pipeless Furnaces, you are not only giving your customer good service and a square deal, but building good-will and future business.

Pilot Superior Pipeless Furnaces cost less to install; they do not block up the cellar with a lot of costly pipes; no remodelling of the house is needed, merely one hole cut in the floor.

In this effective, pipeless system, the heated air leaves the central portion of the one large register, circulates through the house, because lighter than cold air, and, having warmed the rooms, cools and returns to the lower levels of the house. There it enters the outer portion of the register into an exterior casing of the furnace. It is then reheated by passing over the hot castings of the furnace. Ask for literature, to-day. This Pipeless Furnace is going to pay you!

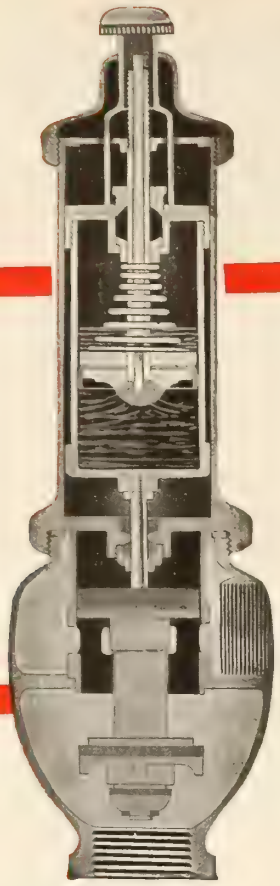
The Hall-Zryd Foundry Co., Limited

Western Branch: Post Office Box 687, Winnipeg, Manitoba

Manufacturers of Pilot Stoves, Ranges and Furnaces

Hespeler - Ontario

PERFECTO
— OIL-REGULATED —
Flush Valves



What Difference Does the Oil Make?

IF all water were pure water—if it didn't contain any sand or dirt or lime—if it didn't increase friction and corrosion, then water would be every bit as satisfactory as oil, for the operation of a flush valve.

Unfortunately, it isn't so, and the **PerfectO** Flush Valve is regulated by oil, because oil is better than water. Dirt or other impurities in the water cannot clog the by-pass, because they can't get near the by-pass. The operation of the valve is controlled entirely by oil. It doesn't depend on the water supply, hence it does not vary. Yet the valve action can be regulated in an instant without bother or fuss.

Write for our Illustrated Catalogue

All vital working parts are constantly immersed in oil, enclosed in a sealed cast-brass chamber. This reduces friction to a minimum and insures a life-time service from every **PerfectO** Oil-Regulated Flush Valve.

Our new illustrated catalogue is now off the press. Write for your copy.

GALT BRASS COMPANY, LIMITED

GALT - CANADA

Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XVI. PUBLICATION OFFICE, TORONTO, MARCH 1, 1922 No. 5

Efficient, Durable, Sanitary

OUR "EMCO" Quick Pression Basin and Shampoo Cock is designed to fit any size lavatory.

Water can be run from the shampoo outlet or for the basin without the necessity of turning on or off two or more taps. All the cocks are on the quick pression principle and insure an absolute shut-off.

It is a valued asset in the barber's shop because of its attractive design and simplicity of operation.

Leading jobbers everywhere handle "Emco" sanitary fixtures and plumbing supplies.

"We cover all the 'Emco' line—with a finish that is fine."

Empire Brass Manufacturing Co.

Limited

London and Toronto, Canada

B-8

Adjustable
Non-Syphon
Sink Trap

ANTHES

Cast Iron Traps

Anthes Adjustable Non-Syphon Sink Trap

This trap is designed so as to be positively non-syphoning, and is a very convenient and economical trap for use on either new or old work.

Short P. Trap

This is the one and one-half inch size, painted. This must be seen to convey an idea of the excellent workmanship, accurate threading, etc., of all Anthes Products.

Adjustable Bath Trap (*Painted*)

2 in. x 6 in. tapped for 1½-in. I.P. thread nickel plated brass cover.

All iron pipe connections. Outlet can be placed in any direction, thus making position adjustable. The trap measures 6 in. over all and can be used with 6-in. joists.

Standard Drum Trap (*Painted*)

Nickel-plated brass cover, supplied either male or female. Size 2 x 6 in. Tapped 1½-in. I.P. thread. Can be used with short nipple and female cover if more length is desired.

Bottle Trap (*Painted*)

This bottle trap is threaded female both ends for 1½-in. iron pipe.

Fitted with brass clean-out screw.

Anthes Foundry Limited

Winnipeg

The "OLD TWIN"
A Syphon Jet of Proven Merit

THE "OLD TWIN"
With top supply and Integral Seat

THE "OLD TWIN"
With side supply and extended Front Lip.

The Syphon Jet is the highest development of closet manufacture—the large water area, deep seal and powerful syphonic action commending it as the most advanced type of sanitary fixture under any mode of installation.

The "Old Twin" was one of the earliest models of Syphon Jet construction, and although details of its design have been altered in sympathy with modern improvements, its essential characteristics remain unchanged.

There have been many and varied designs of syphon jet closets placed upon the market since its evolution but none have surpassed its underlying superiority in action and practical sanitation.

This closet is produced with a variety of special features including:—

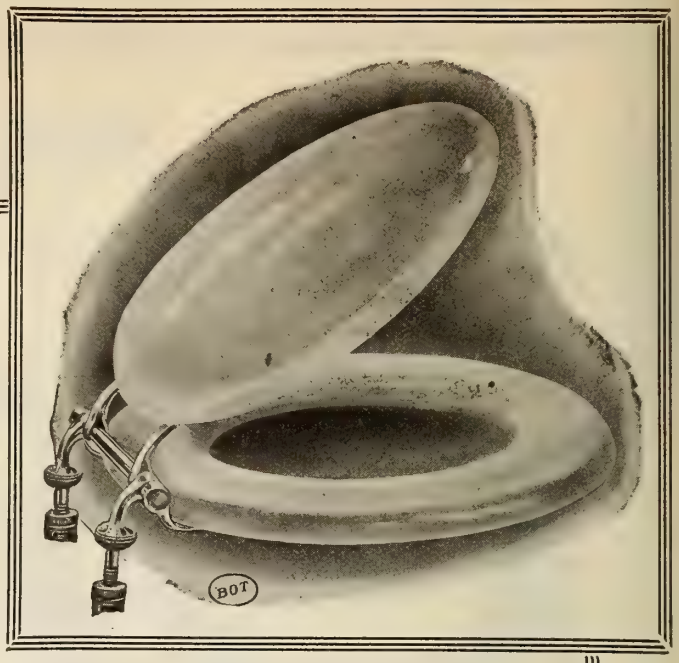
Side Supply
Raised Front Lip
Extended Front Lip
Raised Rear Vent
Integral Seat
Centripetal Action
Donovan Flange
Clean-out Plug
Integral Seat Hinge Bar

as well as almost any combination of these.

CANADIAN POTTERIES
LIMITED

SAINT JOHNS
QUEBEC

Sales handled exclusively through recognized Jobbing houses.



Did You Ever?

Mr. Sanitary Engineer:

Did you ever sell an article that was Perfect? The WORLD'S FINEST CLOSET SEAT and the MOST SANITARY CLOSET SEAT yet produced is the "B.O.T." BLANCO. **IT IS PERFECT,** ask anyone who has installed one.

First made with the regular "B.O.T." DOWELLED SEAT CONSTRUCTION; then covered with a heavy coating of "B.O.T." SHEET BLANCO, which leaves NO SEAMS; lastly finished on a BUFFING WHEEL just as metal is polished.

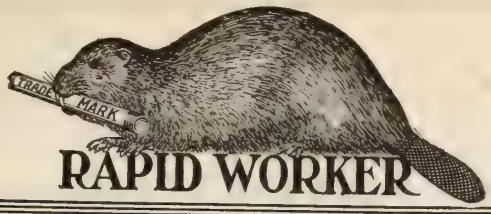
IT IS proof against hot or cold water, WILL NOT CRACK, PEEL or DISCOLOR; is EASILY CLEANED with soap and water, hence is IMPERVIOUS TO DISEASE GERMS.

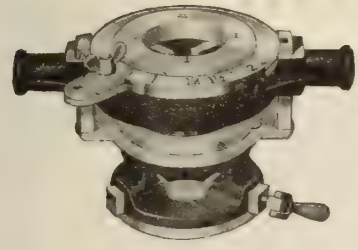
Your customers are in favor of a WHITE CLOSET OUTFIT, a "B.O.T." BLANCO SEAT adds the finishing touches, or, in other words, MAKES A FIRST-CLASS JOB.

SOLD in all styles. Further information gladly sent on request.

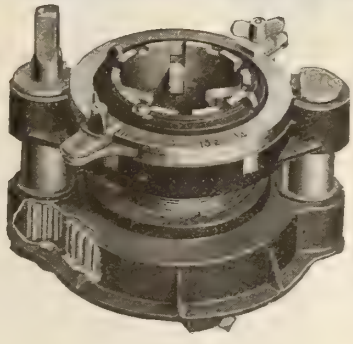
CANADIAN BRASS COMPANY
LIMITED

Galt — Toronto

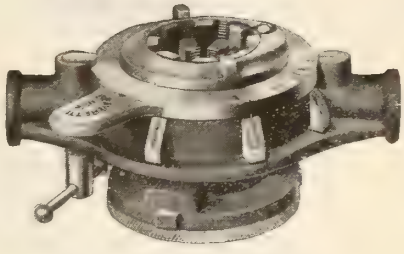




No. 25 Beaver
1 inch to 2 inch



No. 61 Beaver
2½ in. to 6 in.



No. 6 Beaverette
⅛ in. to ¾ in.

Showing the Martin Portable Vise Stand and Pipe Bender in Use and Packed.

The Martin Portable Vise Stand and Pipe Bender is invaluable. It cuts the cost of good-fitting jobs. Plumbers find it indispensable. It stands anywhere. It is the only device that doesn't need to be fastened on floor, wall or ceiling. It will pay you to send a 10-day free trial order to us, through your jobber, or if jobber doesn't handle them, direct.

BEAVER

Tools That Help Business

Beaver Tools will help your business by making a good profit on every job. Here are shown three self-contained Beavers with no loose parts to complicate matters. They will handle jobs of the diameters shown under each cut without changing dies! One man can pull any sized Beaver Tool with one hand—they make one-man jobs.

Other Easy Working Beavers

No. 3, Jr., ⅛ to 1 inch (Ratchet.)
No. 4 Beaver 1 to 2 inch; or ½ to 2 inch (Ratchet.)
No. 26 Beaver 1 to 2 inch (Ratchet.)
No. 61 Beaver 2½ to 6 inch.
No. 80 Beaver 4½ to 8 inch.
No. 90 Beaver 9 to 12 inch.
These three are similar to No. 41.
No. 23 Beaver 1 to 2 inch or ½ to 2 inch.

Square End Pipe Cutters

No. 1 cuts ⅛ to 1 inch.
No. 5 cuts ½ to 2 inch.
No. 10 cuts 2½ to 4 inch.
No. 15 cuts 2½ to 6 inch.
All four cut pipe without burrs—with knives feeding automatically.

One Man Can Do the Work of Two

With Beaver Tools there is no changing dies—no bushings. One man alone can thread 2" pipe because of the narrow receding dies. With ordinary stocks it takes two men to do it. Two men for you to pay and they can't cut as many threads nor such good ones as with the Beaver.

— The —

Borden-Canadian Co.

110 Church Street - Toronto

Empty Shelves— and a Prediction

WITH inventories completed, retail hardware merchants find their stocks smaller now than at any time in recent years. Merchants have held back on spring bookings and freely admit that present stocks are totally inadequate for "Spring and Summer" trade.

Reports from retailers in all parts of Canada are such that we predict a pronounced buying movement within the next six weeks. We are entering a period of improved but cautious buying activity. Purchases will be considered more carefully, comparisons will be made more freely than heretofore. Merchants are adopting a "convince me" attitude. Unknown houses and unknown products are going by the boards these days. Merchants are not taking chances on buying any lines where there is an element of doubt as to the standing or reliability of the manufacturer or the product.

Merchants are the "choosers" to-day. The question is not one of where can I secure goods? It is a question of "whose line will I stock?" At the moment of decision, the line consistently advertised in Hardware and Metal—all other things being equal—is the one that stands the best chance of acceptance by the merchant. The 34th Annual Spring Buying and Directory Issue of Hardware and Metal, reaching the trade on March 18th, will be studied closely by over 95% of the most important wholesale and retail hardware buyers across Canada from coast to coast. Thousands of feet of empty shelving will be filled up with lines advertised in the 34th Annual Spring Buying and Directory Number. Reservation should be made immediately.

HARDWARE & METAL

Office of Publication

143-153 University Avenue : Toronto, Canada

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GREAT BRITAIN—London, The MacLean Company of Great Britain, Limited, 88 Fleet Street, E.C., E. J. Dodd, Director, Telephone Central 12960. Cable Address: Atabek, London, Eng.

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Prepare for Good Times

Trade is gradually mending. It is by no means in a flourishing state but the time is not far away when it will be.

When the rush of business comes we must not be caught in a state of unpreparedness. In dull times we ought to be getting ready for good times.

Now is the time to replenish stocks, roll up sleeves and get out and sell.

"Standard" PLUMBING FIXTURES

Standard Sanitary Mfg. Co.
Limited

General Office and Factory: Royce and Lansdowne Aves., Toronto, Ont.

Toronto Store:
55-59 Richmond Street East
Calgary:
325 Eighth Avenue West

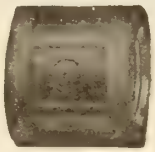
Winnipeg Showrooms:
76 Lombard Street
Hamilton Store:
26-28 Jackson Street West

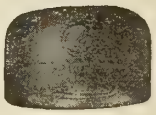
Montreal:
New Birks Bldg.
Vancouver:
860 Cambie Street

"Made in Canada"

CRANE FITTINGS

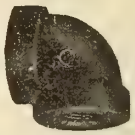
MALLEABLE —————— CAST IRON





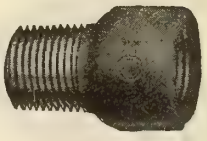
Make Tight Joints

Our patterns for malleable and cast iron fittings include all the necessary sizes and shapes to meet all requirements.



CRANE
LIMITED

Manufacturers of Valves, Fittings and Piping Equipment and Distributors of Pipe, Plumbing and Heating Supplies.



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14

SANITARY ENGINEER
PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907 PUBLISHED TWICE MONTHLY

Vol. XVI. PUBLICATION OFFICE, TORONTO, MARCH 1, 1922 No. 5

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The "Beaver" Porcelain Enameled, One-Piece Lavatory is illustrated to the left. It has D-shaped basin, patent overflow and shell soap dish on concealed brackets. Complete with N.P. overflow strainer, chain stay, plug and stopper. "Beaver" Porcelain Enameled Bath, with 1½ inch roll rim, for Fuller double bath cock, connected waste and overflow, painted exterior. We will be glad to supply dimensions and prices on application.

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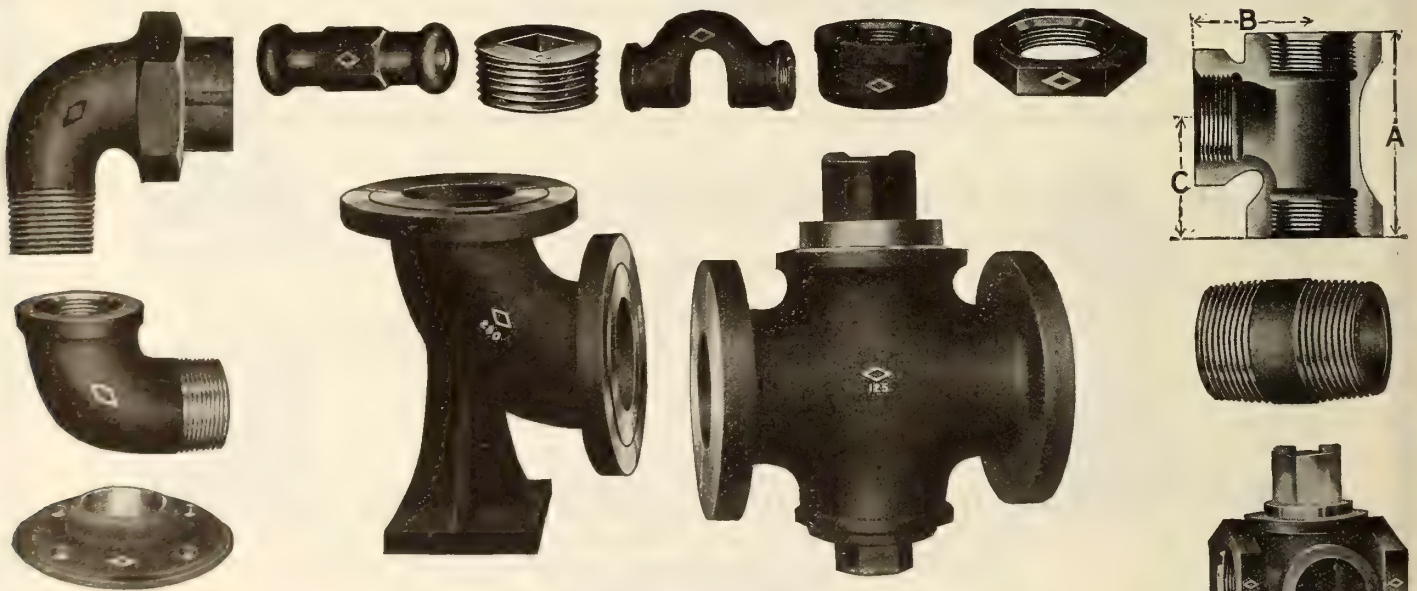

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Says Plumbing Goods Manufacturers Give Trade Discounts Too Freely

Plumbing Supply Houses Discuss Recent Article in Sanitary Engineer Concerning the Closing Up of the Showroom by a Prominent Master Plumber, Due to Lack of Protection—Say Small Wholesale Distributors Sell to Anyone

IN FURTHER discussion of the question of show rooms for plumbers, relative to the article appearing in February 1st issue, "Another Phase of Showroom Question," where lack of protection from wholesalers is given as the cause of a prominent master plumber in Quebec province closing his showroom, Sanitary Engineer has received the opinions of some of the plumbing supply wholesalers in Montreal. One large local distributor stated that after a careful study of the conditions which are prevailing in the marketing of plumbing supplies, they were willing to admit the situation was deplorable. The cause, however, was more or less general and improvement could only be looked for when all interested, from the manufacturer to the master plumber, are willing to shoulder some of the blame, and commence working together in an effort to remedy matters as they now stand.

According to this wholesaler, the manufacturers are extremely lax in their classification of jobbers, selling almost anyone and everyone, with certain instances of even going direct to the trade. Owing to competition this meant that the legitimate jobber, who has the desire to market his goods through proper channels, the master plumber, is confronted with the situation where he must either sacrifice a considerable amount of business, or else meet the competition of small jobbers, both wholesale and retail, with prices that left little or no profit for themselves. This was one of the chief causes of the unsettled market in many plumbing lines most apparent in the months of last fall and early winter.

Sell To Anyone

These smaller houses, no doubt in their anxiety to obtain business in other lines, will sell to anyone who will pay the price, which is usually the same figure that they would charge a master plumber for his goods. Further than this, they will also provide journeymen plumbers for their customers, who install the goods, usually at an hourly rate less than the master plumbers are required to pay their men. This practice is possible because of lack of efficient plumbing laws, and inspection on the part of the municipal authorities.

The master plumbers were said to be responsible to the extent that they have no organization strong enough to deal with the situation, certainly not fully representative of the trade as a whole. No concerted action had been taken by them towards correcting present evils. Neither as a body nor as individuals have they supported concerns which are making an honest effort to do their business along legitimate lines, but have dealt with the jobber who is the worst offender in the sale of plumbing materials direct to the consumer, even to the extent of patronizing the small dealer working against the interests of the master plumber. Cases without number were enumerated where in the last few months this wholesaler had refused to sell direct to a consumer, but unfortunately the order had been accepted by a competitor, absolutely without difficulty or question.

Law Is At Fault

Another plumbing jobber expressed his views in much the same manner. Competition from quarters, which could not be classed as legitimate dealers of plumbing supplies, was a serious menace to the trade, but the opinion was given that the situation would gradually right itself. Although the article had dealt with the plumber not receiving support and protection from the wholesalers, certainly the blame could not be laid at the door of the larger supply house, as far as they were concerned. "If plumbers would organize an association more representative of the trade, matters would improve appreciably in a short while. At the present time, locally at least, it is only necessary for a journeyman to call at city headquarters, deposit a very small amount of cash, and he immediately becomes a master plumber, eligible to carry on his trade within the city, subject only to inspection of municipal authorities. This journeyman is oftentimes encouraged by the small jobbing house. He does not merchandise plumbing and heating goods, finding it much to his advantage not to be a proprietor of a showroom because he can find employment without the worry and expense of same."

Plumbing Goods In Department Stores

Another prominent Montreal supply firm makes the following statement:—

"We consider the conditions which are prevailing today in the marketing of plumbing supplies as deplorable: in fact, the situation might more properly be expressed by the use of the word 'rotten.' We have made quite a study of this, and believe that all concerned are responsible. First, the manufacturer is extremely lax in his classification of jobbers, selling almost anyone and everyone on that basis, and, in addition, most of them go direct to the trade. This means that the legitimate jobber, who has the desire to market his goods through proper channels, meaning the master plumber, is confronted with the situation where he must either sacrifice a considerable volume of business, or else must meet the com-

petition of small jobbers, and more particularly hardware dealers, both wholesale and retail, who find it possible to purchase and carry plumbing supplies, and who will gladly sell to anyone who will pay the price, which is usually the same figure that they would charge a legitimate master plumber for the goods. Further than this, these houses will also provide journeymen plumbers for their customers, who will install the goods, usually at an hourly rate less than the master plumbers are required to pay their men. This practice is possible because of lax plumbing laws and inspection on the part of the municipal authorities.

"Coming now to the master plumbers; they have no organization worth speaking of, and no concerted action towards correcting these evils, nor have we found that they will, either as a body or as individuals, support a concern which is making an honest effort to do their business along legitimate lines, as against a jobber who is the worst offender in the sale of plumbing material direct to a consumer, even to the extent of patronizing the small dealer, who is always working against the interests of the master plumber. We have had cases without number in the last few months where we have refused to sell material direct to a consumer, where, to our certain knowledge, it has been accepted by competing jobbing houses absolutely without difficulty or question.

"Unless some general action can be taken towards the correction of these evils, we are quite convinced that within a short time plumbing goods will be sold exactly as are drygoods, by department stores."

Tinsmiths Don't Need to Be Alarmed

Protection Will Continue to be Offered by Retail Merchants Ass'n of Canada—No Action Expected by Government Pending Appeal Case Before Supreme Court

By Special Ottawa Representative of Sanitary Engineer

THERE will be no occasion for tinsmiths to become alarmed if the Government renews its attempts to place them in the category of manufacturers and insist on the payment of the three per cent. sales tax, as a result of the recent judgment handed down in Ottawa, in the case of the confectioners, which is believed to have placed various lines of trade at the mercy of the federal tax collectors.

Protection is being, and will continue to be offered by the Retail Merchants' Association of Canada, the executive officers of which are watching developments closely.

As a matter of fact, Sanitary Engineer's Ottawa representative has it on pretty good authority that no action will be taken by the Government, pending the appeal of the confectioners' case, which is to be heard in the Supreme Court of Canada some time during March. While there is no definite understanding between the government and the R. M. A. as to the course to be followed by the government after a decision in this case has been handed down, officers of the association express themselves as confident that the ruling will be made to apply to all retail merchants, who are selling direct to the consumers.

R. M. A. Will Take Matter Up

Communications have been sent out from the head office of the Retail Merchants' Association in Ottawa to the various provincial secretaries advising them that if any actions are started by the government against any retail merchant, including tinsmiths, word is to be sent at once to the secretary of the Dominion Board who will proceed at once either to have the action delayed, or to fight it.

The confectioners' case referred to is one in which the government succeeded in establishing that an Ottawa dealer who manufactured candy for sale over the counter, was a manufacturer, and therefore came under the provisions of the Act which assesses a straight three per cent. tax on sales by manufacturers to retailers and consumers.

Justice Audette, who was the author of the judgment in the confectioners' case, not so very long ago rendered judgment in a similar action by the government against a certain Ottawa tailor, who because of the fact that he assembled clothing for direct sale to the consumer, was looked upon by the customs and excise authorities as a manufacturer; but the decision was different in that case. And therein lies hope for the tinsmith, whose mode of doing business is almost identical with that of the tailor. Referring to the first case, Mr. Justice Audette, in his recent judgment said:

"As a prelude to the consideration of the present controversy it is well to state that the present case is distinguishable and must be distinguished from the Pedric case—a case recently recited by me and cited at bar—for the obvious reasons that the facts are materially different and further that the law has since been amended and changed."

In spite of the above, the members of the Dominion Board Retail Merchants' Association of Canada, are uneasy, and are anxious to secure a ruling that will settle once and for all the question as to who is and who is not a manufacturer. In the meantime, however, the merchants have been busy making representations to the Government which may yet result in having the Act more clearly worded—worded in such a manner as to leave no room for dispute as to its exact intent and purpose.

PLAN TO BUILD WORKMEN'S HOUSES ON CITY LAND

Montreal.—A motion for submission to the city council is now being prepared, asking that the council approve a plan to borrow $2,000,000 from the province for the construction of workmen's dwellings. If the plan finds favor, the executive committee will be asked to proceed with the borrowing of the money and the preparation of plans. It is pointed out that the proposal offers a barrier to high rent in the matter of workmen's homes and also presents a solution of the housing shortage.

It is estimated that accommodations for at least 500 families can be provided at this cost and the plan, if found feasible, is capable of indefinite extensions.

Appreciate Sanitary Engineer Articles on Rural Water Supply

Sanitary Engineer has received from Prof. R. R. Graham, of the Ontario Agricultural College, Guelph, the following letter, which is self-explanatory:

The Sanitary Engineer,
Toronto.

I received marked copy of your valuable magazine, "Sanitary Engineer," February 1 issue, in which appears an article pertaining to rural water systems, page 9. I would appreciate very much any work that you may do along this line, namely, the stimulating of greater activity among the farmers in the installation of water systems, plumbing, etc., as the rural homes are sadly lacking in these necessary equipments. I am pleased to say that there is evidence of an awakening of the rural people in respect to this problem, if we are to judge by the large number of inquiries we receive every day asking for information on water systems, sewage disposal, etc.

Thanking you for your assistance in this valuable work,
Yours very sincerely,
(Signed) R. R. Graham, B.A., B.S.A.,
Lecturer in Physics, Ontario Agricultural College.

The Use of Ozone in Purifying Water

Application of Ozonized Air to Water to Act as Disinfecting Agent Requires Much Study—An Unstable Gas Requiring Large Amount of Energy for its Formation.

SO MUCH has been said about the growing importance of ozone as an element in connection with the purification of water, that Sanitary Engineer has secured for its readers the following article on the subject.

Ozone was first observed by the Dutch chemist Van Marum, in 1785, while operating a static electrical machine. In 1840, Schoenbein, while investigating the properties of the gases produced in electrolyzing water and electrifying air, noted the odor and oxidizing properties of the gas and gave it the name of "ozone," because of its peculiar odor. It was not until the result of Soret's work in 1865 were known, that scientists agreed that ozone was tri-atomic oxygen, although it had been generally held that it was some form of oxygen.

Ozone is an unstable gas requiring a large amount of energy for its formation (34,000 calories). It is but slightly soluble in water, and undergoes decomposition when heated. When strongly ozonized oxygen is liquefied and the product subjected to fractional distillation, a mixture of ozone and oxygen results, of which about 85 per cent. is ozone. The factors governing the "ozone-oxygen system" are none too well understood. The state of equilibrium which exists in a mixture of the two gases is dependent upon several factors, such as temperature, pressure, and electrical conditions that are extremely complex.

Great Oxidizing Agent

Ozone is an extremely energetic oxidizing agent. It attacks many inorganic oxidizable substances readily, and is particularly destructive of organic matter even at low temperatures. Its value as a bactericidal agent is probably due to this property, and is the reason for its use in the disinfection of drinking water.

For practical purposes, the production of ozone can best be effected by certain forms of electrical discharges through oxygen gas or through air, which, of course, consists in part of oxygen. It may be well to describe the nature of these discharges so that the technical difficulties of the practical production of ozone will be better appreciated.

The phenomena of an electrical discharge through a gas are complicated. Ordinarily gases are non-conductors, but may become conductors under certain physical and electrical conditions brought about by the flow of the current through them. When two electrodes are separated by a gas and connected to some source of high tension electricity, and between them the potential difference is being gradually increased, there is first produced an invisible electrical discharge which gradually becomes visible by a glow upon one of the electrodes. As the potential difference increases the corona effect is produced, which changes to the true brush discharge. It is the latter form of discharge that is regarded as the most effective in the production of ozone. By still further increasing the potential difference between the electrodes there is formed in succession the spark discharge, the flame and finally the well-known electric arc.

The brush discharge is of a dark blue violet color and is accompanied by a peculiar hissing sound and the "electric wind," which latter, according to J. J. Thomson, is due to a current of electrified ions that set the air in the vicinity of the discharge in motion. Brush discharges are readily formed on electrodes having sharp points or roughened edges. Alternating or direct current may be used, but usually the alternating current is preferable since it may be obtained more readily under high tension. A better production of ozone appears to be obtained with alternating currents of high frequency. A 500 cycle alternating current is more commonly used in ozone installations than one with lower frequencies.

Increasing the Yield

It has been found, as a result of much experimentation, that the use of a dielectric between the electrodes increases the yield of ozone. In other words, imposing even greater resistance than that offered by the air itself, effects a larger production of ozone by the discharge. Dielectrics are made from various substances, such as glass, mica, fused quartz and bakelite. While many other substances will act as dielectrics, the above named include the practical materials available in ozone work.

It will probably be appreciated from the little that has been cited of the complex character of the phenomena of ozone production that the pressure, temperature and humidity of the air being electrified, the form, size, spacing and material of the electrodes, the kind of current employed, the frequency in the case of an alternating current, the voltage, amperage and other secondary influences of an electrical nature in general, and the kind and arrangement of the dielectrics employed, are factors that must all be given careful consideration in an efficient ozone apparatus. A brief description of one or two of the ozonizers that have been developed and have been used may be of interest.

There are two general types of ozone apparatus. The Siemens-Halske ozonizers are of the vacuum tube type, in which air is drawn through an annular space across which high-tension electrical discharges occur. An inside metallic cylinder acts as one electrode. It is covered by a slightly larger tube of glass covered with tin foil. The electrodes are water cooled. The General Electric and the Gerard apparatus are of the tube type also. The Small-Linder, Abraham-Marmier and Vosmaer apparatus use plate forms of electrodes and dielectrics. In some cases their electrodes are hollow and water cooled, but in others this cooling is not attempted. Voltages varying from 2,000 to 3,000 to 50,000 or 60,000 have been used in various ozonizers, but from 10,000 to 20,000 volts are more commonly employed. The yield of ozone increases with an increase in wattage for any given area of electrodes, that is, with the density of the current per unit of area.

Much Study Needed

The application of the ozonized air to water, where the ozone is to act as a disinfecting agent, has been given considerable attention by investigators, but much more study of the problem is needed. In some cases the flowing water is used to suck the ozonized air through the ozone generator and into the water to be treated. This method is not susceptible of very close control. Another method consists in pumping the ozonized air into the bottom of towers down through which the water descends. A modification of this latter method consists in placing the air compressor back of the ozonizer, thereby avoiding handling the corrosive gas in the compressor. In this case the ozonizer must be in a container that will withstand the air pressure required to overcome the hy-

(Continued on page 16)

FARM PLUMBING

A standard plumbing system, including fixtures suitable for at least 80 per cent. of the farm homes of this province, and recommended by the Department of Physics, O.A.C., Guelph, is summarized as follows:

Fixtures—	
Bathtub with trimmings	$58.00
Bathroom sink with trimmings	25.00
Closet	35.00
Kitchen sink	25.00
Laundry tubs	55.00
30-gallon boiler	12.50
	$210.50
Roughing in, including water pipe, soil pipe, etc., and labor	200.00
Water system (electric)	190.00
Septic tank	50.00
	$650.00

Pointers on Profits and Turnover

The Siamese Twins of Successful Business—Plumber Can Take Some Lessons From the Newsboy and Others in Question of Rapid Turnover and Means Taken to Effect Quick and Profitable Movement of Goods—National Trade Extension Bureau Gives Some Interesting Facts.

NEARLY always when the turnover of a business is mentioned, it is intended to refer to the number of turnovers per year, and not to the volume or amount of turnover. It is frequent turnovers that bring the big financial returns on the money invested.

Consider the newsboy. He starts out in the morning with a quarter, invests it in the early morning edition, sells out his stock, goes back and gets the noon edition, sells it out, and comes back for the sporting edition in the afternoon, and again for the regular evening edition. At the close of the day it looks like he had worked the miracle of the loaves and fishes. He has made his original quarter earn several dollars in one short day.

When you consider that he does this day after day, and at the end of the year has his original quarter left, you can see that he is a veritable Ponzi. Bear in mind he is carrying on his business with a small investment. He knows his requirements, and by keeping to his original capital he cannot be tempted into overbuying in the face of tempting discounts for large quantities. This because he knows from experience just what he can dispose of in an ordinary day. He is handling an article that is in demand, that is a necessity, not a luxury. If he sells out, he can quickly renew his stock. It is better to re-order than to overbuy.

How He Does It

This is not all done automatically. First of all, he secures a good location to display his stock. Sometimes he selects a prominent corner, and puts his papers on a stand, trusting to the public to leave their money when they take a paper, while he goes elsewhere, and disposes of more by personal appeal.

Sometimes you find a boy who has overstocked, and is trying to sell the noon edition after the afternoon edition is on the street. Did you ever notice the extra effort this boy puts forth. He advertises by crying out in terse sentences, the important bits of news in his paper. Just enough to excite your curiosity. These papers are not left to sell themselves just because they are a little old. Neither can he afford to lose the cost of them, so he makes an extra effort to get rid of them. This is the boy who turns his stock over frequently, because he gets a good location, and advertises intensively.

While it is impossible to equal this large number of turnovers in any staple business, it is nevertheless surprising the big returns on capital invested that can result from frequent turnovers. The principles of the newsboy's methods of salesmanship can be applied to any business.

Let us assume that 10 per cent. net profit is averaged on the sales price. This would mean about 15 per cent. on cost exclusive of overhead. Suppose we sold out our entire stock five times a year, this would mean a net return on the amount invested in stock, of 75 per cent. Much like a Wallingford "Get Rich Quick" story, but true nevertheless. The figures used are conservative. Ten per cent. net on the selling price is far from an unreasonable profit. Turning stock five times a year is done by many plumbing and heating dealers. Many other lines secure a far more frequent turnover.

Turnover Completed When Payment Made

There is one point that must not be lost sight of. The turnover is not completed until payment is received in full. This is a matter too frequently overlooked. In order to operate on a small investment, close attention must be given to collections as well as to sales. The newsboy's rapid turnover is due to selling for cash, as well as to sales methods. Prompt rendering of bills and close following up of unpaid accounts within thirty days will take care of this end of it.

Did you ever stop to reason why the successful contractor figures a low net profit on a big job? It is because of the number of times he turns his investment in it where the contract is properly drawn, to allow him to collect 85 per cent. of the selling price every thirty days, on the goods installed and journeymen's services rendered. By this means he carries a large job with a small capital, using the same money over and over. In collecting 85 per cent. of the selling price, he is getting back about 90 per cent. of his cost, leaving but a very small amount of his investment, except profit, tied up in the job, and not earning any interest.

There is one point in this connection, however, that we desire to bring out strongly at this time. That is the ordering of excess quantities, where the material is to be shipped to the job direct. This is of more importance on jobs calling for fittings of a large size, or other than standard.

Importance of Quantities

Too many contractors do not pay close enough attention to quantities, in estimating. They often order a few, if not many, more of each fitting needed. When the job is completed they have a great deal of money tied up in material that is not readily saleable. This accumulates from job after job until a large portion of their stock room is occupied with it. In addition to the loss of income on the money invested, there is the expense of insurance and handling, to say nothing of the inconvenience and worry caused the stockman or those handling stock.

It would be far cheaper to return this material to the supply house, and receive credit for it less the charge usually made in such cases. This charge is never unreasonable, and is far less than the cost of handling in the stock room until it is sold. Another way of disposing of such surplus stock is to plan some job or sale to use it up.

How then is this frequent turnover, which gives such wonderful results, accomplished? Two things are necessary. "Proper purchasing" and "successful selling." By the first, we mean pur-

	2—Appliances Stocked Cost	2—Sets of Material Stocked	Amount Invested	Invested in Labor	Total Turnover Cost
Five Turnovers	296.00	20.00	316.00	10.00	326.00
One Turnover	296.00	20.00	316.00	10.00	326.00

	Selling Price	Overhead on Sale	Profit on Sale	% Profit on Sale	% Profit on Investment
Five Turnovers	2400.00	480.00	240.00	10%	10%
One Turnover	480.00	96.00	48.00	10%	10%

chasing those articles which will move off the shelves with reasonable promptness. This is done through a knowledge of what our customers need and want. This knowledge, coupled with knowing in what quantities to buy, gives the dealer a most excellent start on the road to frequent turnovers. Buying in proper quantities means taking into consideration the probable demand for an article based on figures compiled from available sources.

It means also that the buyer must guard against the temptation of quantity discounts. Too frequently an extra five or ten per cent. is offered for ordering a fifty or one hundred per cent. increase in quantity. This looks very tempting, but when you stop to consider that this extra quantity may stay on the shelves the balance of the year, and the money invested in it will not be earning a cent of interest, the fallacy of the argument for quantity buying can be readily seen. Stock purchased during normal times in quantities to last longer than sixty days is going to result in cutting down the number of turnovers per year from what is possible.

Another Danger

Another thing to guard against in buying is tying up money in untried and unknown goods. Stick to standard brands made by manufacturers who know the markets, and who co-operate with the dealers in moving their goods. Beware of the low priced, unknown brand, and its salesman, who paints a vivid picture of quick sales and big profits. It is a delusion, and a snare, and is manufactured to sell only to the easy dealer, who is misled by cheap price for cheap goods.

All the "proper purchasing" you may possibly do will not make a dollar for you unless you sell what you purchase. Profits come out of sales. So really when all is said and done, it is "successful selling" that brings many turnovers. This, then, will be the essential part of this article. To show how sales may be increased, and the results reflected in turnover and profits.

Everybody agrees that personal solicitation cannot be beaten as a means of selling something. Talking to the prospect; holding his attention, and influencing him through proper arguments while displaying the article before him have always been and will continue to be the best methods of selling.

Put a salesman on your staff; get someone; be it man or woman, who is interested in selling. Show them the selling points of the articles they have to sell, the uses they can be put to, and the added comfort and convenience they mean in the home. Then watch and see the results.

Can Decrease Stock

Before doing this, however, go over your stock very carefully, and see where you can cut down the quantities of items you are now carrying. Our experience with plumbing and heating dealers tells us positively that nine out of every ten can decrease their stock 25 per cent. without decreasing their efficiency. This because too little attention is paid to stocks, thereby allowing too large a quantity of many items to accumulate.

Take the money derived from this surplus stock, and reinvest it in a wider variety of articles that can be readily sold. Give considerable attention to this selection, using all available sources of information. The advertising pages of your trade papers, the current magazines, other lines of business, and many other places will suggest to your mind things that can be sold by the plumbing and heating dealer. The fact that some article never has been sold by you or your fellow dealers is no reason why it cannot be done. Be a pioneer, and go forth into untried fields. They offer a rich harvest to the one that will sell them consistently and earnestly. In this we urge conservatism; stock sparingly until the demand has been created.

We are giving you herewith an example of what may be conservatively expected from sales effort, intelligently directed, and its results on turnover and profits.

The following list represents a very substantial increase in any business, particularly in average shop of $25,000 annual volume. It is well within the possibility of any average salesman to sell these items, and more too, in twelve months.

In connection with the merchandising of plumbing equipment, suggestion plays a very important part. Thus a display such as this, showing the various pieces in the relative position they would occupy in the bathroom of the private home, is of interest. This shows the bath tub, pedestal and wall basin, toilet, bath accessories, stool, paper holder, towel rack, mirror, glass shelf, medicine cabinet, heater, etc. The combination of this group of articles conveys many suggestions to the prospect who views the display in the plumbing shop window or interior.

12 Gas Water Heaters @ $200 or 36 Combination Boilers and Heaters			$ 2,400.00
6 Heat Regulators	@	85.00	510.00
15 Coal Water Heaters	@	50.00	750.00
12 Range Boilers and Heaters	@	40.00	480.00
4 Bath Rooms Remodeled	@	400.00	1,600.00
6 Jobs Radiator Shields	@	75.00	450.00
12 Frost Proof Closets	@	50.00	600.00
3 Heating Plants	@	1,000.00	3,000.00
6 Pipe Covering Jobs	@	150.00	900.00
			$10,690.00

First, bear in mind, these are selling prices and include labor service, overhead and profit. To arrive at the amount of investment required, we will first deduct 40 per cent. which is a very conservative figure to cover the three items just mentioned. This amounts to $4,276.00, which deducted from our total selling price of $10,690.00, leaves $6,414.00 as the cost of the merchandise.

Now comes the important point. It is not necessary to purchase the entire stock as shown above. That would be very poor business judgment. You would have six thousand dollars tied up that was not earning a cent of interest, and in addition there would be insurance and handling charges. Let us assume that this entire lot was purchased one-sixth at a time. Two heaters, or combustion boilers and heaters, two coal heaters, two range boilers and two frost proof closets are ample stock of these items for the small dealer.

An investment therefore of one-sixth of $6,414.00, approximately $1,000, will enable the dealer to swing ten thousand dollars in sales. Granting he makes 10 per cent. net profit on the selling price, he has made $1,000.00 on an investment of $1,000.00 The most skeptical reader must admit that even though we have exaggerated the smallness of the investment and the per cent. of profit, and this we do not admit, even though such be the case, we say, these figures cannot be revised to show anything but an exceedingly large turnover on the investment.

Big Return Investment

The point we are trying to bring out, however, is the big return the dealer will get on his investment necessary to handle the appliances. In other words we are incorporating in this article the ideas advanced by many manufacturers of specialties and appliances, who contend that their list price provides a good margin of profit on the investment, if proper sales effort is put forth, and a sufficient number of turnovers are obtained. Let us take one item of the above list, and see the results of frequent turnover, as set out in the contentions of many manufacturers. For illustration, we will use an appliance selling, installed, for $240.00, and make comparison with one and five turnovers per year. We will assume that the dealer stocks two of these all the time.

The figures show that on five turnovers 74 per cent. is earned on the amount invested as against only 15 per cent. where there was only one turnover per year.

A further analysis of the figures pertaining to overhead brings out some interesting figures. Basing overhead at 20 per cent. of the selling price, we have $480.00 for overhead, on five turnovers, and $96.00 on one turnover. In view of the fact that our investment in both cases is the same, that we only carry in stock at any time two appliances, and that but very little additional overhead expense is required to handle five turnovers over that required for one, it would seem fair to show a saving on overhead through frequent turnovers, in view of the fact that our profits have increased from $43.00 to $240.00 on the same investment.

The difference gained on overhead as shown above is $480.00 compared with $96.00 or $384.00 gain. If this gain is apportioned over the ten sales, it would be about $38.00 on each sale. Deducting the $38.00 from the original selling price of $240.00 we have a revised selling price of $202.00 with the same amount of profit in dollars and cents.

The above example is based upon an appliance listed at $185.00. The dealers' discount is 20 per cent., and the cost of installing is based at $10.00 for material, and $10.00 for labor. Normal overhead is figured at 20 per cent. on the total sales of the establishment, and a 10 per cent. net profit is allowed on the selling price.

The above is a much discussed question. Many manufacturers contend that prevailing lists and discounts, as well as selling prices installed, afford ample profit for the dealer, if he will increase his turnover.

Novel Water Supply Equipment Installed

Beach Grove Golf Club, Windsor, Ont., Has Water Supply System for Watering its Greens—The Installation Described.

AT A COST of approximately $15,000 the Beach Grove golf club has installed a water supply system for watering the greens and fairways that is said to be unequalled in Canada and is as complete and efficient as the water plant of any American golf course. It covers all of the eighteen putting greens and the thirty-six tees.

Water is forced from Pike creek into two 5,000 gallon pressure tanks, 34 feet long and 60 inches in diameter, and from there forced through the underground pipes from where short hose lengths reach to above sprayers.

Both electrical and gas pumping equipment provides for a supply at all times, the gasoline engine to be used in case of interruption to the electrical plant.

By its complete water supply, the Beach Grove club is assured of splendid grass throughout the season; in fact below the covering to keep off the frost there is today a healthy growth to be seen, and early spring will see as clean a turf as anywhere in the country.

The machinery by which the water is obtained is contained in a frost-proof pump house. All units are in pairs, and are so arranged that the apparatus will continue to function in the event of a breakdown in any single unit. Two electric motors operate the two heavy-duty double-acting water pumps. An automatic apparatus switches on or cuts out either or both pumps, which can be cut in automatically in case of a severe drought. There is a working pressure of 75 pounds per square inch maintained ordinarily which can be increased to 125 pounds in emergency. When water is not being used, the pumps are stopped and as the pressure is reduced by drawing off water, the pumps automatically cut in until the pressure is brought up to normal.

Careful Method of Laying Pipe

From the pumps and tanks, a system of pipes underground carries the water to each of the 18 putting greens and the 36 tees. The main line, extending to the club house site, is 4 feet 6 inches deep, well below the frost line.

All the smaller lines were laid by a trench digging machine, which established an even grade from the surface to the main supply line. This method eliminates the usual low spots and drain cocks necessary when these lines are laid by hand, and eliminates the possibility of burst pipes when the water is drained off in the fall.

Control apparatus, valves, drain cocks, etc., were all of the highest quality. The system has been designed to function for 25 years without replacement.

Novel Installation at the Greens

At each point where the water is taken off at the surface a large-sized drain cock of vitrified tile is sunk into the ground so the top is level with the surface. Rising up through the center is the supply pipe. Sufficient room around this pipe is left to coil the long rubber hose used to throw the water to the greens. A wooden cover fits over the tile tightly, protecting the hose from the sun when not in use, and keeping the whole out of sight. All installations are located a sufficient distance from the putting surface so as not to interfere with play.

A new type of mechanical sprayer will be used, covering the large greens thoroughly and evenly with a minimum amount of attention.

Heating and Ventilating

Combination Heating Systems

An Important Series of Articles Dealing With Many Interesting Phases of Latest Developments in the Field of Heating Practice.

(Written exclusively for Sanitary Engineer by NORMAN A. KEARNS)

The series of articles on Combination Heating Systems, which were commenced some time ago in Sanitary Engineer, were unavoidably interrupted, but are being recommenced with this issue. This series has interested many readers of Sanitary Engineer who will be glad to know that it is to be resumed on a regular basis.

BECAUSE in the pages of the Sanitary Engineer descriptions of various systems of heating have appeared it, no doubt, has been at times assumed by some of our readers that we were advocating the use of certain types of apparatus to the exclusion of others equally as good, or, perhaps, better than any of those to which we were directing attention.

We do not wish any of these articles to be considered as a "boost" for some one thing and a "knock" for some other. In fact, it has been our aim to present these articles so that they might not only describe heating systems as heretofore installed, but, in addition, might also indicate the trend of more recent developments in this, the science of the heating and ventilating engineer.

The Best System?

It is not always easy to define that point where, in our opinion, a certain type of heating apparatus becomes no longer a thing of value, but rather a thing of nuisance and annoyance. The difficulty comes not necessarily by reason of the lack of merit in a peculiar construction—it frequently comes because the circumstances surrounding a particular installation might be such as would make those merits of no effect.

Each system of heating has in its own field certain advantages that may make it, at times, of considerable value for particular cases; yet we may safely state that there is no one system that is entirely without faults.

Combination systems of heating have their advantages and their limitations. No man can say off-hand—although some men can speak more readily than others—just where any system using warm-air as a partial, or entire heating medium is the ideal system for a particular installation. It may be taken, however, as a general principle that where many separate heating units are required that the use of any warm-air system is inadvisable.

A Wide Field

Our field is a broad one and there is room in it for everything of merit. And because of the breadth of his operations the heating engineer requires some knowledge of the principle on which the use of the details in some other system than that which he handles is based. The knowledge of the other fellow's methods is of value, not because we wish to do our work in exactly the same way in which he does his; but because we may find in his methods suggestions for the improvement of our own. It is by looking into those subjects with minds unbiased by commercial motives and prejudice that we can increase the resourcefulness of our own equipment.

Actua' Installation

In writing these articles we have tried at all times to use actual installations in the examples of how certain details of construction have been adapted for a peculiar circumstance, or as an illustration of some one of the general principles of the art of designing combination heating systems.

In some of the former articles of this series we have used in our examples the plan of a small house wherein a piped warm-air furnace was indicated. With that plan we were able to describe certain of the main points which should be considered in the lay-out of a piped furnace, and, in this way point to the essential details that, in principle, applied to a much larger plant.

In many houses of the same size as the one shown by the plan there has been recently installed the "pipeless furnace" system. We have not gone into any detailed description of that type of furnace setting, because the simplicity of the arrangement makes apparent, at a glance the principles on which it has been developed.

It has not been our privilege to see a pipeless furnace used in a combination system of heating, therefore we are unable to point to a specific instance of where such an installation is a proven success.

Combination hot-water and warm-air systems of heating present to the engineer difficulties not only peculiar to either of the two methods of heating which are to be combined, but present also difficulties of the combination. The greatest difficulty encountered is that of making provision for the uniform balancing of the system, and to which we have referred in a former article.

This matter of the balancing of combination systems has been brought to our attention again within the last month, through a circumstance when the writer in his private practice was asked to give a report on the design of a heating system suggested for a small public building.

In the design referred to, the specifications called for warm-air heating in certain of the very large and exposed rooms which were set at some considerable distance from the furnace. Parts of the lower floor and certain protected rooms in the basement were to be heated by direct hot-water radiators.

Had the plans as suggested been carried out, here is what would likely result:

During mild weather, when the fire would be run on a checked draft, there would be circulation of water sufficient to keep the temperature of the rooms where radiators were placed at about the desired point, and, no doubt, the circulation of air would be just as the designer of the system expected that it would be. However, when the cold north or west winds would beat down against the exposed walls and windows of those rooms wherein reliance was placed in the warm-air system only, the result would be something like this.

The fireman would start to force the fire in an attempt to offset the rapidly falling temperature of those particular rooms. With the forcing of the fire there would naturally come a raising in temperature of the water contained in the system. The radiators being situated in the least exposed parts of the building would overheat the rooms wherein they were placed. The occupants of these rooms would likely turn off the heat from those rads, and the water would start to boil out of the expansion tank.

An Example

This might appear to be a far-fetched example of the lack of balance in a combination system. Nevertheless, it is one taken from an actual instance and will serve to show why combination systems are sometimes condemned because of faulty design.

The majority of our readers will rightly assume that no proper design of a combination system would be laid out along such lines, and that it would be reasonable to place the radiators in the exposed rooms and the warm-air registers closer to the furnace. In this case, difficulties of a structural nature prevented the installation of a system to that advantage. Because of those structural obstacles to the proper lay-out of an efficient warm-air system, the idea of any system using warm-air should have been abandoned.

We must never lose sight of the fact that the two systems combined are inseparable in operation; they will not function independently. With this general principle in mind we should see to it that warm-air registers are placed wherever it is possible to conveniently arrange for such, and that the hot-water radiators are used as auxiliary units only.

In many cases we may find that there will be certain rooms that cannot be reached by warm-air feeders, and it will then become necessary to utilize direct radiators as the heating units for such rooms. If the lay-out should be such as will make necessary the installation of many of these separate radiator units, it would be best to no longer consider the combination system.

The Principal Factor

In these articles we have given much more space to the subject of the warm-air part of the system than we have to the hot-water part. We have done this because heating by warm-air must be the first consideration in the design of a combination system.

During the past year we have examined a number of heating systems when we have found their owners dissatisfied with the operation of their plants. In many of the cases we found circumstances of such a nature as would prevent any warm-air furnace giving satisfaction. A frequent experience was to find that the designers of the system had evidently forgotten that the main ideas in the design of a warm-air system are to reduce the air pressures in the rooms to which a current of warm-air is to be directed, and to increase the air pressure in the lower part of the space between the furnace and its casing.

A cold-air intake was sometimes set on one side of a building, and then on days when the wind was moving from an unfavorable quarter the pressure in the lower space between the furnace and its casing was reduced by reason of the partial vacuum resulting on the leeward side of the house.

We also found that in some cases vent flues were set so that the outer atmospheric conditions exerted a downward air pressure at times sufficient to reverse the current of air in a direction contrary to that anticipated by the designers of the system.

From examples like the foregoing, two general principles may be deducted.

First: Dependence for a supply of fresh cold air should never be placed on one intake set on one side of a building.

Second: Extraction, or vent ducts must be heated to a higher temperature than the rooms in the building, or they must be fitted with some type of automatic ventilator or a suction fan.

Where it is impossible to heat the vent ducts or to provide the automatic ventilators, the ducts should be connected to a common gathering chamber wherein there may be placed back-draft check dampers of muslin or silk, as described in a former article of this series.

In the next article of this series there will be illustrated a warm-air heating system laid out on the lines of the direct extraction of foul air from the rooms and the free admission of cold outer air to the heater chamber.

THE USE OF OZONE IN PURIFYING WATER

(Continued from page 11)

drostatic head of the water columns and the friction head resulting from the flow of the air through pipes and towers. A third but expensive method has been used in which the water has been sprayed into the atmosphere of ozonized air. Baffled towers, where the counter-current system is used, have not proven very successful. A great deal has yet to be learned regarding the proper method of distributing the ozonized air at the bottom of the column of water, so that a maximum absorption of ozone may be effected.

Since the expenditure of so much electrical energy in ozonizing the air creates more or less heat, and in consequence subsequent decomposition of the ozone formed, cooling and drying the air by refrigeration have been usually resorted to.

In small plants, passing the air over chemicals that would absorb the moisture, has also been successfully utilized. The yield of ozone apparatus naturally varies greatly, depending upon the manner in which the air is handled both before, during and after the passage of the gas through the ozonizer. Russell Spaulding, in a report to the New York State Department of Health in 1913, very concisely states the desirable features of a good ozonizing apparatus. He estimates the theoretical yield of ozone for an expenditure of 1 kilowatt of electrical energy to be 1, 386 grams. Since the actual yields of apparatus will vary all the way from 10 to 60 grams per kilowatt, it is evident that their efficiencies are very low. Mr. Spaulding summarizes his conclusions as follows.

To summarize, then, the main desiderata in generating ozone are:

1. A supply of alternating electric current at low cost.
2. An efficient transformer to obtain high tension.
3. Ozone electrodes that do not generate heat to
   (a) Disrupt the dielectrics;
   (b) Cause reversion of ozone to oxygen;
   (c) Require external means for cooling.
4. Ozone electrodes that will approach the theoretical efficiency much more closely than the various systems now in use.

To this the author would add, that unless the ozonized air is effectively applied to the water to be disinfected, that is, unless practically 100 per cent. absorption of the ozone by the water is effected, the over-all efficiency of the entire apparatus may still be far from satisfactory. This phase of the subject still warrants considerable investigation.

No Doubt of Disinfecting Properties

The ability of ozone to reduce the bacterial content of a water has been too frequently demonstrated to doubt its inherent disinfecting properties. Nevertheless, it has its limitations in this direction like other disinfectants. In waters containing too large an amount of organic matter some of the bacteria may escape being killed. Pathogenic organisms probably are more readily killed than the ordinary water forms, because of the unfavorable conditions imposed upon them in the water, as well as from the destructive effect of the disinfectant. Spore-forming bacteria may also escape destruction. Ozone, because of its strong oxidizing powers, has the merit of being able to oxidize and remove tastes and odors due to organic matter in suspension or solution, and to reduce the color due to vegetable stain. If ferrous iron exists in a water, it is able to oxidize the iron to the ferric condition, in which form it is practically insoluble, and hence may be removed by sedimentation and filtration.

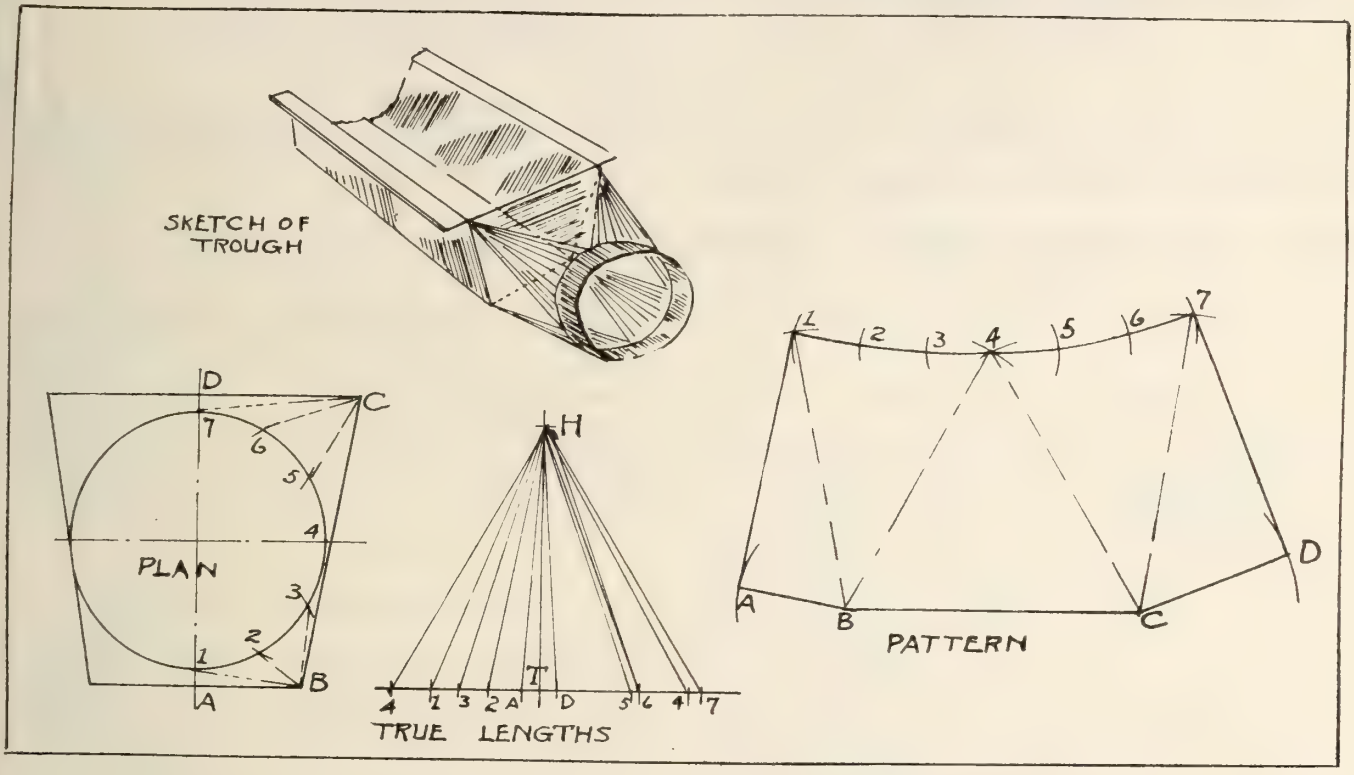
In conclusion, it may be well to point out that ozone used as a disinfecting agent is no more a cure-all for a polluted water supply than are other disinfecting agents that are at present more widely employed. As a supplement to filtration processes ozone can be used with good effect, and thereby render the water safer for drinking purposes. That the process needs investigation and scientific development in order to make it economical and efficient, cannot be denied by its most ardent advocates. When such a development is brought about, its use in the purification of water will become more general and its points of real merit better appreciated.

CONVENTION OF SASK. SOCIETY OF S. AND H. ENGINEERS

The fourth annual convention of the Saskatchewan Society of Sanitary and Heating Engineers will be held in Liberty Hall, Regina, on March 7, 8, 9, and 10. The first day will be a meeting for the Executive Committee only, the general convention opening on the 8th. Early indications are said to promise a good representation.

Patterns for Irregular Connections

By O. W. KOTHE, Principal St. Louis Technical Institute, St. Louis, Missouri



PATTERNS FOR IRREGULAR CONNECTIONS

OUR SKETCH shows a trough which has a transition placed on each end of it. The idea is to catch the oils or substances running through machines.

Even though the bottom is smaller than the top, which gives the shape as our plan drawing, we can associate this evenly with a square to round transition treatment.

So, first draw the plan making the measurements of the base together with the height, and the flare of the sides, and the length of the top as specifications call for.

Then describe the round base wherever it should be and divide one-half of the circle in any number of equal spaces, drawing lines to the corner B and C as shown.

To set out the true lengths, draw a line as H—T to equal height or length of the transition and then pick the plan lines as B-1-2-34 and set them in diagrams as T-1-2-3-4.

Also pick the lines C-4-5-6-7 and set as T-4-5-6-7.

If desired, the top and lines as 1-A and 7-D can be taken and set in diagram as T-A and T-D. When lines are drawn to H we have the true lengths.

To set out the pattern, draw any line as B-C equal to that line in plan.

Then pick true length H-4 to the left and using B as center, strike arc as at 4.

Next pick true length H-4 to the right of diagram and using C as centre, cross arcs in point 4.

Now describe arcs 3 and 5 to equal the spaces 4-3 and 4-5 of plan.

Then pick true lengths H-3 using B as center, cross arcs in point 3.

After this, pick line H-5 from diagram and using C as center, cross arcs in point 5 as shown.

Repeat in this way until points 1 and 7 are established.

Then pick the bottom line A-B and also the top line C-D and set in pattern as shown.

Pick the lines H-A and set as 1-A in pattern and then pick H-D and set as 7-D in pattern and this gives the half pattern. Laps must be allowed for riveting.

NEW LIQUID CHLORINATOR PURCHASED

Chatham, Ont.—The Chatham Waterworks plant is to have a new liquid chlorinator apparatus, which is to be ordered and installed as soon as delivery can be arranged.

It is learned that the new apparatus was badly needed and a recommendation that it be purchased and installed was received from the superintendent. The new apparatus will be ordered from the Wallace Tiernan Company at Toronto, the only makers of this particular plant in Canada. Approximately, the price will be in the neighborhood of $3,000 installed.

Mr. Dallyn, of the Provincial Board of Health, will be asked to visit the city for an informal discussion of the whole waterworks supply system for the city. The discussion will involve an endeavor to determine on the best source of supply, and an entering into of the whole situation.

STEEL BUYERS REMAIN IN CONSERVATIVE MOOD

The iron and steel market situation has shown a little improvement during the past week or two. The general condition is that demand has not improved since last month to the extent generally looked for. However, the volume of inquiry, both on the foreign and domestic centres, is reported as slightly improving. Buying in general is in small lots. While it is sometimes said that distributors and manufacturing consumers are ordering in conservative fashion because they are somewhat doubtful as to the future of quotations, yet another judgment of the trade is that the chief concern of buyers affects their own selling ability or the stability of their distributing markets. It is inferred that if steel purchasers were assured that their requirements would continue, or if any increases in future demand could be calculated upon, much freer buying would result. Reports from American centres indicate that any order of moderate size is sufficient to draw forth a slight concession from the regular market level.

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Ozone As a Purifier

THE SUBJECT of ozone in connection with heating and ventilating work has been much discussed recently by those interested in this branch of the industry. An article appears in this issue giving something of the history of ozone and giving the results of some experiments which have been made. There seems little question of the disinfecting qualities of ozone, but there are undoubtedly some types of bacteria which could not be killed by its action and it is therefore not a cure-all for a water supply which might be much polluted.

Recent developments indicate that ozone is likely to become an important factor in connection with standard ventilating equipment. Its history is interesting, as revealing a rapid rise to notice. Only as recently as 1913 there appeared the quotations of authorities which largely brought this new discovery to prominence, but it shortly afterwards lost some of its early glamour as some of its exponents lost some of their enthusiasm. Some even feared that ozone might supplant fans and blower systems, but the correct idea of recirculation of air was not then established. It was also thought that continued use of ozone would have harmful effect on human health. This was followed two years ago with a startling report of the use of ozone in the public schools of a large American city which reported as result a great decline in the number of cases of illness among pupils.

The question has assumed a somewhat new angle and importance of late, due to high costs of fuel and the pressing need for a solution of certain ventilating problems. Recent investigations have indicated that there are good grounds for imagining that ozone will, in future fill an important place in connection with heating, ventilating and water purification.

Should Stamp Out This Evil

PLUMBERS and other merchants of Brantford, Ont., have taken the lead in attempting to offset what has become a most unfair medium of reducing the volume of their business in local communities. This has to do with traveling carnival companies and carnival attractions. A campaign has been started because of some bitter experiences of that city in view of the fact that the number of these carnivals touring Canada has been gradually increasing in the past few years. There are several reasons why plumbers and other representative bodies should seek to have these aggregations kept out of Canada. It is a known fact that when they visit a city they take away with them thousands of dollars which otherwise would remain in the city to be spent in its stores and in a more useful manner than it can be spent at such carnivals.

An attempt is being made to right the wrongs which have existed for some years in connection with transient traders and hawkers who visit a community and solicit business while paying little or no portion toward the expenses of that community such as the permanent merchant must do. So, too the carnival is a transient affair which contributes but a small license fee and takes away a large volume of revenue which otherwise would go to enrich the inhabitants of the community who have their money and interest centered in that community.

Apart from the financial side of the question there is also the moral aspect. No one will deny that these carnival companies in most cases represent the scum of the theatrical world, who do their best to impoverish, both morally and financially, those who frequent their amusements. Steps are being taken by representative bodies in Brantford to stamp out the evil of travelling carnival companies. Already many sections of the United States have barred these traveling companies, and Canada is now looked to as a fertile field for exploitation. Plumbers and other representative bodies in other cities might well join Brantford in seeking some means of restraining these companies from coming to Canada.

Little Solace For Tinsmiths

TINSMITHS throughout Canada hardly know where they are at in regard to their status for taxation purposes, due to the many contradictory rulings and judgments handed out by those who should be authorities on the subject. Another turn has been taken in the case but the position of the tinsmith is not yet clearly stated. The Ottawa representative of Sanitary Engineer reports that on good authority, no action will likely be taken by the government to force tinsmiths to collect and return three per cent. sales tax as manufacturers pending the appeal of the confectioners' case which will be heard in March in the Supreme Court. Naturally there are many technical differences between the business of the tinsmith and the tailor and confectioner, and it is surprising that it has only now been discovered that the decision in either one or the two latter classes of business, does not apply to tinsmiths.

Briefs

GROUP selling is one of the solutions of the retailer's problem of stimulating business. The merchant might well look over his stock with a view to grouping lines which will carry more or less of a combined appeal to customers, and to mention such lines when the customer asks for any one of the group. It is surprising the increase which can be made in the total volume of trade by making such timely suggestions, and the customer frequently will be pleased with the suggestion in saving return trips to the store.

CHANGES which have taken place in the economic situation since the commencement of the year, are generally recognized to contain a larger degree of favorable developments, than otherwise. On the whole, therefore, basic conditions have continued to improve, one of the factors contributing towards this end being the current activity in construction. Prospects for an active year in the building industry are evident in both city and country districts; while acceleration in this direction is reflected in the basic metal industries and the various commodities required in construction work.

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights —Keep the Entire Series Where It May Be Referred To And Studied

Article No. 49 of Series; Illustration 60.

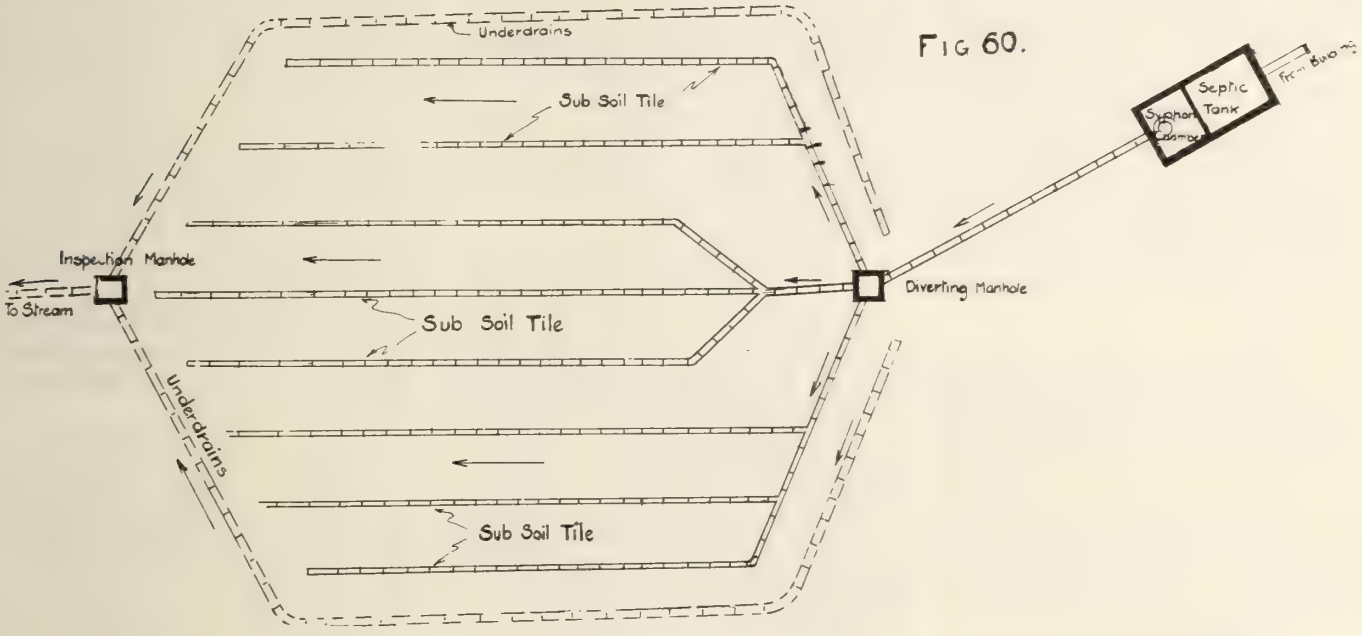

FIG 60.

FIGURE 60 shows a much larger filtration area carried out on a similar principle to the previous one with the exception that the under-drainage is carried around the outside boundary of the whole area whilst the distribution tiles are placed in three separate sections.

Figs. 61, 62, 63 and 64 give cross-sections of the cut and the best method of filling in same to increase the filtration process in the various soils, for if the subsoil drains were packed tightly around with clay or any other impervious soil the sewage would in time follow the pipe line and be discharged, without purification, into the outlet stream.

In laying the tile the main object is to arrange and provide for ample opportunity for the circulation of air, both through and around the pipe, which not only increases the absorption of water but hastens bacterial action and that is the main reason for laying and covering the pipe with cinders or coarse gravel and the depth and quantity varies according to the soil—the heavier the soil the greater amount of filling required.

The subsoil drains should be laid true to grade, and require little fall, with ¼-inch open joints protected with broken stone to prevent the earth, tree roots, etc., obtaining access to the pipes and blocking same up.

The temperature of the sewage in the tank in cold climates is generally sufficient to prevent the tank effluent freezing in the filtration area. Should any difficulty arise through this condition, and the outlet elevation will permit, the pipes should be kept 3 to 4 feet below the surface, but as the tank effluent requires all the aeration it can obtain the shallower the pipes are laid the better the chances are of it obtaining the oxygen from the atmosphere and no single case of frozen effluent has come under the writer's notice in his experience with pipes laid at 2 feet depth with the single exception of the pipe outlet in a Canadian installation. So that in very cold climates it would be advisable to place the outlet pipe 4 feet below the earth surface so as to protect same from frost.

The capacity of the tile drains should be nearly equal to the volume of tank effluent discharge at any one time so that the entire drainage system under filtration will be filled and emptied at the same time, allowing the intervals of rest needed between each discharge, in order that the land under treatment can have plenty of time to take up sufficient oxygen for the next application of sewage. This is best regulated in the design and capacity of the second chamber or dosing chamber with the automatic flushing syphon. In some cases, for the sake of economy, the syphon is not installed and a simple central pipe overflow connected to the drainage system is substituted, this is not good practice, however, as proper distribution is impossible and the sewage just trickles constantly in the pipes and only the first part of the filtration area or drainage tiles receive the tank effluent and in time becomes sewage sick and little purification then takes place.

Experience has given another good method of obtaining the amount of tile required for efficient filtration results and that is each foot of 4 inch tile drain will take care of each gallon of liquid discharge into the drains from the tank in open and porous soils. In heavy soils approximately two feet of 4 inch tile is required per gallon.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

NEW FIRMS

Montreal.—Robert & Hudon, plumbers, have registered partnership.

PERSONAL

Geo. Baird of Alexander & Baird, prominent heating and plumbing contractors of Moosejaw, Sask., spent last week in Toronto. Mr. Baird says that he has been in the plumbing and heating field for a number of years, and although it has been his expressed desire ever since he has been in business to visit the East and take a trip through the manufacturing plant of plumbing fixtures and enamelware business, this has been his first opportunity. We all hope that Mr. Baird enjoyed himself while here, and that he will make this a yearly event.

H. J. Sykes has taken over the position of Sales and Advertising Manager for the Ontario Wind Engine & Pump Company, formerly held by Mr. Fairbrother. Mr. Sykes has been with the above company ever since he graduated from High School thirteen years ago. For a number of years he was connected with the Sales Department and for five years was Purchasing Agent. Previous to taking over his present position he was Superintendent of Branches.

ONTARIO PLUMBING INSPECTORS' CONVENTION

The annual meeting of the Plumbing Inspectors' Association of Ontario will be held in St. Catharines, Ont., on March 22. The program is now being arranged under the guidance of Secretary W. Meadows, Toronto. Letters have been sent to the various municipalities throughout the province suggesting the importance of representatives being present to hear the papers to be given by authorities on various phases of this work.

PLUMBING FIRM PURCHASES PROPERTY

Stratford, Ont.—Dufton & Saunders, plumbers and pipefitters, have purchased what is known as the Dunwoodie property which faces the east side of Huron street, just north of the stone bridge. There is a frontage of sixty-five feet, extending from the north wall of the plant of Dufton & Saunders toward the bridge, and the lot is 182 feet deep. The firm plans to build a modern structure on this property.

OBJECTS TO LICENSING PLUMBERS

Hamilton, Ont.—D. Wark, city plumbing inspector, asked that the commissioners license plumbers. He stated that he had great difficulty with amateur plumbers doing "bum jobs." If they were licensed, stated the inspector, this would not happen.

"You'll make plumbing a closed corporation," suggested Judge Snider. Magistrate Jelfs was also opposed to the idea.

"I'm glad Judge Snider and the Magistrate agree with me," stated the mayor. "I've heard all about this and I don't like it."

This ended the matter.

PLANS WATERWORKS SYSTEM

Woodbridge, Ont.—Engineer E. A. James has presented plans and estimates for a water system, and as a result it is likely that the council will decide to bore test wells and see if a sufficient quantity of water can be obtained to make the scheme feasible. It is proposed to obtain the water from wells. The system would at first include only the business center and the main streets but the plant would be large enough to provide for extensions. The cost of a partial distribution plant, pumping station, standpipe and wells was estimated at between $25,000 and $30,000.

CONTRACTS ON MOUNT ROYAL HOTEL

The following sub-contracts on the new Mount Royal Hotel, Montreal, have been announced:

Crane, Limited, plumbing fixtures.

Garth Co., Montreal, heating and ventilating appliances.

Jas. Walker Hardware Co., pulleys, chains, etc.

Canadian Allis-Chalmers Co., Montreal, cast iron windows and balconies.

SEEK AMENDMENT TO DRAINAGE LAW

Taking the ground that the Ditches and Watercourses Act has outlived its usefulness, the Association of Ontario Land Surveyors, at a session at the Engineers' Club, asked that there be a general overhauling of the Provincial legislation relating to drainage and requested that the Act mentioned be either repealed or amended. As the law stands at present, the construction of extensive drainage systems comes under the Municipal Drainage Act, and that of smaller systems under the Drainage and Watercourses Act.

UNIFORM RULES TO BE ASKED OF GOVERNMENT

Windsor, Ont.—The Provincial Government will be asked to make a uniform set of plumbing regulations to govern all Ontario cities and towns, if a recommendation adopted by Windsor Council's Market and Property Committee is concurred in by Council. "Under present conditions," Mayor Wilson said, "plumbing regulations here are in a chaotic state. Each municipality has different regulations, the plumbers are inconvenienced, and the various councils do not know what to do to regulate matters."

The move for uniform regulations was endorsed by Abbott Ross, city plumbing inspector, and by leading merchant plumbers.

GIVES ADDRESS ON PLUMBING

Winnipeg.—Mistaken notions in plumbing were dealt with by J. Shepard, district inspector, in a recent address to the Manitoba branch of the Sanitary Inspectors' Association. The old-fashioned idea, said Mr. Shepard, was to enclose bath tubs, toilets, etc., in heavy woodwork in order to keep as much of the plumbing out of sight as possible. The result was that bathrooms were fine repositories for dirt and disease germs. The modern idea was to have the plumbing open and accessible.

Then the old-fashioned idea that drains should be large, so as to easily carry off night-soil, has been exploded. The modern idea was to have the drains no larger than absolutely necessary in order to permit as strong a scouring action as possible. In the wide drains solids were frequently left behind because of the sluggish flow.

Another mistaken notion was as to the heights of buildings. Disparity in heights of buildings caused disparity in the strain on plumbing and other fixtures. Big buildings created a correspondingly large draught and subjected the fixtures of smaller adjoining buildings to undue pressure. Arguments for and against the house trap, now compulsory, were stated. The chief argument against the house-trap was its tendency to obstruct the free flow of sewage. Its big advantage lay in its permitting ventilation from the street up the soil pipe.

WESTERN ONTARIO NEWS

W. G. Murray, Dominion Savings Building, London, Ont., is preparing plans for new $45.000 school at Springfield, Ont. Prices wanted on heating, plumbing.

John Putherbough, 1006 Wellington St. London, Ont., wants prices on hot air heating, plumbing and electrical work for new $6,000 residence.

The Board of Education at St. Thomas, Ont., plans improvements in connection with the heating system at Myrtle St. school and will want prices shortly, it is stated, on additional steam radiation and equipment.

J. A. Tennant of St. Williams, Ont. wants prices on heating and plumbing in connection with new $3,800 residence.

Wm. Copp, 51 Wortley Road, London, wants prices on hot air heating, plumbing and electrical work in connection with three new residences to cost $12,000.

Hayman & Mills, 280 Maitland St. London, want prices on heating, plumbing and electrical work in connection with $50,000 apartment they plan to erect in Spring.

Architect L. G. Bridgeman, Bank of Commerce Building, London, is calling for tenders for $25,000 addition to Musical Arts Society Building, hot water and steam heating, plumbing and electric lighting.

WANT PIPE LINE TO STOP POLLUTION

Welland, Ont.—Members of the Welland Water Commission, in conference with representatives from the Water Commission of the municipalities of St. Catharines, Merritton and Thorold, decided that representatives from these municipalities should wait upon the Minister of Railways of Canada, at Ottawa, and lay before him the urgent need of constructing the proposed pipe line from Port Colborne to St. Catharines, by reason of the building of the Welland Ship Canal and diverting the waters of the Chippawa Creek thereto, thus polluting the source of supply.

REORGANIZATION OF STEEL AND RADIATION, LTD.

Subject to the approval of formal meetings of bondholders and creditors which are to be held in the near future, arrangements have been entered into for the reorganization of Steel and Radiation, Limited, by the way of transfer of the undertakings and assets of that company to a new corporation to be formed and called the Imperial Radiation Company. The president of the new company will be J. E. McAllister, of Toronto, and the manager, E. T. Wingate. It is intended that the new corporation will come into operation in the immediate future. The new company desires to retain and carry on the business and connection of Steel and Radiation, Limited.

Contracts Awarded

Quebec.—John & Paquet, have plumbing and heating contracts for home costing $125,000 for L'Oeure de la Protection de les Jeune Filles.

Moncton, N.B.—Edgar T. LeBlanc, plumber, who had the contract for the plumbing and heating of the new Bathurst Hotel, was recently awarded two more contracts. He is now installing a hot water heating for John Legere and J. P Whealen.

Toronto.—Gurney Foundry Co., has hot-water heating contracts for 3 stores and apartments for A. Grossi & Bros; heating and plumbing contracts for two bungalows for A. Nelson are awarded to D. & G. Lynch; heating and plumbing contracts for residence for T. A. Entwistle are awarded to F. R. Maxwell & Co; heating and plumbing contracts for two residences for W. M. Bricknell are awarded to J. J. McClandish; heating and plumbing contracts for boathouses at Sunnyside for Dean Bros., are awarded to Bennett & Wright Co.

Halifax, N. S.—Plumbing contract for club house for Royal Nova Scotia Yacht Squadron is awarded to W. F. Craig.

Port Credit, Ont.—Wright Bros. have plumbing and heating contracts for alterations to residence, construction of new garage and swimming pool costing $30,000 near Mississauga Golf course for J. P. Bickell.

St. John, N. B.—J. P. Hennebury has heating and plumbing contracts for addition to epidemic hospital for General Public Hospital Commission. Byrne & McGeough have heating and plumbing contracts for construction for the Eastern Trust Co.

Montreal.—Laflamme & Courtemanche have plumbing and heating contracts for stores and residences for F. Dansereau; plumbing and heating contracts for two residences for C. F. Brown are awarded to Jno. Watson & Co.; Thos. J. Dyer, Ltd., have ventilating and heating contracts.

MONTREAL PLUMBERS ADOPT RESOLUTION

Montreal.—The following resolution was unanimously adopted by the Master Plumbers' Association of Montreal at the last regular monthly meeting:

"Whereas, for some years a serious condition affecting the trade has existed in Canada, in as much as Retail Hardware Stores have been placed by the manufacturers on their preferred list and sold at the same price as legitimate plumbing and steam supply houses who deal exclusively in that line, all of which is not in the best interest of the trade.

And whereas, it has been proved that few, if any, of the hardware dealers protect the plumber.

And whereas, to successfully conduct business a plumber must make a profit on the goods he installs principally because the margin on labor alone is not sufficient.

And whereas, it is the decision of this meeting that retail hardware houses should refer purchases of plumbing fixtures to the plumber, in the same way as the plumber would refer purchasers of hardware, locks, nails, etc., to the hardware store, both being merchants in their own particular line.

Be it therefore resolved, that the manufacturers of plumbing and steam supplies be advised that we strenuously protest against such action on their part and respectively submit that steam and plumbing goods should be sold only through concerns known as legitimate dealers.

And be it further resolved, that a copy of this resolution be forwarded to the secretaries of all sister associations in Canada, with the request that every effort be used by the members to make it effective.

Prices are wanted on heating system for new school for S. S. No. 6, Raleigh, by Gordon Drew, R. R. 1, Fletcher, Ont.

Catalogues and Booklets

HEAVY SHEET STEEL GOODS.

Catalog No. 32 covering heavy sheet steel goods has recently been issued and distributed by the Steel Trough & Machine Co., of Tweed, Ont. Included in the products listed in the booklet are galvanized tanks for various purposes, tank heaters, stable troughs. Culverts, sanitary closets, steel baths, wash stands and similar materials also occupy prominent places in this catalog. Welded steel pressure tanks, measuring pump outfits, lift and force pumps, and many other lines of manufacture are suitably illustrated and described.

BURNHAM BOILERS.

A very sensible and cleanly-illustrated catalog covering both water and steam type Burnham boilers has recently been distributed by Lord & Burnham Co., of Toronto and St. Catharines, Ont. This is their Catalog No. 61-C and it explains in a very logical and simple way, the various attributes and principles of the Burnham system of boilers. Various technical phrases are also made extremely clear by means of several typical illustrations. The methods of operation, the action when in actual service, the points of construction, advantages and economy features, are all things detailed in this booklet. The latter portion of the catalog is devoted to descriptions of the round sectional construction type of boiler. It comprises thirty-eight pages of very useful matter on this vital topic.

"Oyez - Oy

"Oyez - Oyez - Oyez" called the Town Crier—and then he'd proceed to give such news as he had been able to gather in a lusty voice that could be heard for blocks.

"Oyez - Oyez - Oyez" — Current events, local gossip — scandal — all these were part of the news items imparted to a breathless public each day.

Advertising in those days was an unknown thing. Turnovers were small in consequence and profits large.

Modern advertising has changed all this however and the 20th Century slogan is Big Turnover—Small Profit.

Port Hope Sani

Factory: PORT HOPE, ONT. Toronto Show Rooms: 119 KING ST. EAST Winnipeg Office: 405 TRIBUNE BLD

z-Oyez"

Big Business for 1922

Canada Faces a Shortage of over 200,000 Homes

Over 700,000 Canadian Homes Have No Plumbing Fixtures

DOMINION BUREAU OF STATISTICS

Advertising in your local paper will increase your turnover. Advertising is the golden key to business success everywhere, and in order to encourage the trade to advertise by making advertising more easy, we have had prepared a number of attractive newspaper cuts for your convenience.

These, printed in your local newspaper over your name, will attract favorable attention that will result in bigger business for you.

A post card will bring them.

SUPERIORITY PURITY DURABLE AS THE PYRAMIDS

Mfg. Company, Limited

Halifax Office:
URDY BLDG., HOLLIS ST.

Head Office:
ROYAL BANK BLDG., TORONTO

Montreal Showrooms:
234 BEAVER HALL HILL

Plumbers Ask For Aid From Quebec Gov't.

Asked to Promote School or Aid Those Now Existing for Training of Apprentices—Master Plumbers Would be Instructors and Only Bona Fide Apprentices Would be Admitted to School.

MONTREAL.—Realizing the necessity of improved conditions in the matter of training apprentices, the Master Plumbers' Association of Montreal and employees have now arranged to ask the Quebec Government for assistance. Following meetings in this connection, it has been decided to make representation to members of the Government, and the Apprenticeship Committee of the Association, consisting of Messrs. Jos. A. Francoeur, P. C. Ogilvie, J. E. Walsh, and David K. Trotter, have drafted terms of a proposed resolution for presentation.

Arrangements have been made that the committee meet Premier Taschereau, the Provincial Treasurer and the Minister of Public Works at an early date, and the memorandum now being prepared includes the following points: That in view of the lack of apprentices in the plumbing and steamfitting trade, and the lack of suitable training for those to be engaged in these trades, the Provincial Government, through its Department of Public Works, and the Provincial Secretary, should either promote and maintain a school for the technical training of plumbers and steamfitters, or give more substantial grants to those already in operation. Also to have the curricula of these schools drafted more in consonance with modern practises.

It will also be suggested that all instructors in these classes should be master plumbers, and that no pupil should be admitted to any such classes unless they were bona fide apprentices to master plumbers.

May Be "A Wolf in Sheep's Clothing"

Unscrupulous Leaders of Soviet Russia Abandoning Murder-Rape Policy in Attempt to Win Sympathetic Co-operation of the World in the "Save the Children Famine Fund"

A large proportion of the contributions toward relief work in Russia, in connection with campaigns now under way, will undoubtedly be expected from business men. For the information and protection of these business men, Sanitary Engineer reproduces herewith an article, to be followed later on with another, outlining some data on the subject.

We have been under the impression that Lenine and Trotsky were a couple of extremely clever, unscrupulous hypocrites for whom the world was handpicked by the Germans and certain allies, which they officially admit, and sent to head a movement for which plans had been carefully made, to take Russia out of the war and to place that country's wealth and resources in the hands of the promotion syndicate. By slogans and popular theories of handing the properties of the classes to the masses they made a great hit. They themselves, of course, never believed in any such ideals. They got their rivals and opponents out of the way by a gigantic system of organized murder. They prolonged the war and in that way were responsible for the killing and maiming of thousands of Canadian boys. Since the war they have carried on a persistent campaign for creating discontent in Canada—particularly among the wage earners to prevent their working.

Having looted Russia to the limit they are throwing down their dupes, the Bolshevists, blaming them for the wrecking. They are just like groups of financial highwaymen with which trusting investors here are too familiar. They are asking the world to come in and assist them to re-organize the company, buy more bonds. The first offerings did not meet with success. The public was suspicious of the looters. They called back the proposals and proceeded to sugar-coat them; to put the public in a friendly frame of mind for their reception. Their new propaganda was designed to show that the looters were really very great, kindly, in fact, saintly, men; public benefactors who had suffered from the actions of unscrupulous employees. It is true, Lenine and Trotsky admit, thousands of good Russian men were murdered and many more thousands of gentlewomen and girls raped but that was an error of judgment. They are repentant. They are sorry. They are changing the system. The murder-rape policy is being gradually abandoned. The sugar-coating is the linking up of "Save the Children Famine Fund," with the whitewashing of Lenine-Trotsky. A big-hearted genial Canadian, Colonel Mackie, rancher, contractor, promotor, recently made a flying visit to Russia and has come back full of the saintliness of the reformed Lenine-Trotsky crew of murderous highwaymen and the good things they have done and are going to do for Russia—and the old story of prospects of big buying orders for Canada and Russian concessions for Canadians. Under the auspices of the "Save the Children Fund," the gallant Colonel has set himself the task of correcting Canadian beliefs in the unsavory characters of these men.

We would be sorry to misjudge Colonel Mackie, but the fact is that so far all his utterances in interviews are about one-tenth famine relief and nine-tenths rehabilitation of Lenine-Trotsky. It is rather a coincidence that over two months ago a propaganda sheet issued by the Berlin Bolshevik agency told of this plan—boasted of its success in developing the appeal for famine relief into a big campaign for the financing of Soviet Russia by western capital. Now they will boast the Canadian Parliament is giving them moral recognition. Is this fair to Canadians?

LIGHTNING ADJUSTMENT PIPE WRENCH

The Superior Wrench & Tool Co., of Widmer and Adelaide Streets, Toronto, Ont., announce that arrangements have been recently undertaken whereby they are now equipped to supply all five sizes of their pipe and general utility wrench. The manufacturers were previously engaged in making the small sizes only, but are now prepared to supply sizes ranging from 8 to 24 inches. It is named the "Lightning adjustment" pipe wrench, claim the makers, because of its easy and simple manipulation.

SOUVENIR SUPERHEATER

The souvenir superheater is the name given to the parlor type of heater by the Hamilton Stove & Heater Co., of Hamilton and Winnipeg. The manufacturers claim that the name is derived from the fact that the air is superheated by passing through the louvers, up around the fire pot and over the superheating fins. It is then distributed through the principle of re-circulation. As the superheated air rises from the heating chamber within the casing, a vacuum is created, thus automatically drawing the cold air into the louvers. The construction and specification features of the Souvenir include the following height overall, 48 inches; depth of fire pot, 15 ins.; size of body, 23 ins. square; size of feed door opening, 6½ x 8½ ins. It is made in the one size only and is designed on the same lines as a hot air furnace. In appearance, the makers claim that the Superheater will harmoniously blend with the furniture design in the home, being finished in gunmetal with rich copper trimmings. The complete design and effect is to resemble a modern piece of furniture.

WATER BOARD RESIGNS

Montreal.—Aldermen J. A. Brodeur, F. S. Fortin of the Department of Public Works and H. A. Perrault, Superintendent of the Water Works have been named to form the new Water Board of Montreal, following the resignation of the former members. R. S. & W. S. Lea and Walter J. Frances and Co. have been retained as Consulting Engineers.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

MARKETS AT A GLANCE

COMPRESSION goods, solder, bar iron, scrap materials, ingot metals, sheets and oakum, supply the current market developments in sanitary and heating materials. The easier tendency in lead products is reflected in lower prices on various grades of solder, this change indicating the trend in primary metals. Through a revision in discounts, standard brass compression work, brass steam cocks, compression bath cocks and basin cocks, are again reduced. Uncertain prices are also evident in some quarters on the heavier gauges of corrugated iron sheets. An easier tendency in copper is reflected in semi-finished goods such as sheets, rods and tubing. A change in galvanized sheets is recorded in eastern markets, while a similar recession appears on bar iron and steel base prices in other quarters. Depression again exists in the scrap material markets, with some lower prices available. The ingot metals are also dull, with reductions noted on copper, tin and antimony. There is still some uncertainty in such products as range boilers, enamelled ware and closet combinations, but a more stabilized market on these goods is looked for with the advent of increased activity during the prospective seasons.

MONTREAL MARKETS

MONTREAL, March 1.—The easier tendency in lead products, and further reduced solder prices, feature the current market reports on plumbing and steam-fitting lines. Tin on the primary markets is exceptionally weak, while both lead and copper also have slightly lower quotations. Further reductions in the finished products are said to be not unlikely if the present softer tone continues for any length of time in basic metals. Local sheet markets are again featured by slightly reduced levels appearing on all gauges of American galvanized sheets. The present reduction is only slight, and distributors look for little further declines of any marked proportions. A further recession is recorded in the prices on most scrap metals, these markets remaining very dull. Plumbers' oakum is reduced 35 cents per 100 lbs., bringing the present price down to $7.00 per 100 lbs. in 50 pound bales.

Prospects of future building operations lend encouragement to the increased activity in practically all lines of plumbers' supplies, and while business in different commodities is now described as quiet, there is every promise of a fairly active season ahead. There is still a certain amount of unsettlement on the local market, particularly on enamelled ware and range boilers, but it is felt that an improvement in this direction will be felt as soon as the volume of trade increases.

REDUCED PRICES APPEAR ON SOLDERS

Montreal.

The easier tendency in the market for lead products, owing to the softer tone in metals on the primary markets, is now reflected on current quotations, of solders in all grades. Guaranteed, strictly pure, commercial and wiping are all reduced one and one-half cents per pound. Wire solder also shows easier prices to the same extent, but owing to the differential on quantity buying, following quotations are increased, former levels being for orders of considerable weight. Solders are the only line yet quoted at lower figures, the reason, according to manufacturers, being because of the easier tone recently displayed in tin. Only this week this metal reached a new low point, the lowest that has been touched in the past ten years. Just to what proportions this downward tendency will reach before a recovery is made, is hard to determine, but it would seem likely that an improvement will shortly be forthcoming when the exceedingly low figures are taken into consideration. Revised quotations on the local market are as follows:

Lead pipe, per 100 lbs.	**12 50**
Lead waste, per 100 lbs.	**13 50**
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	**10% off**
Lead wool, lb.	**0 13½**
Lead sheets, 2½ lbs.	**0 10½**
Lead sheets, 3 to 3½ lbs., sq. Do., 4 to 8 lbs., sq. ft.	**0 09½**
ft., lb.	**0 10¼**
Cut sheets ¼c lb. extra and cut sheets to size, ¾c lb. extra.	
Solder, guaranteed, lb.	0 27
Do., strictly, lb.	0 25
Do., commercial, lb.	0 22
Do., wiping, lb.	0 23
Do., wire, lb.	0 35½
Zinc, sheets, casks	0 11
Do., broken lots	0 11½

EASIER TENDENCY STILL IN SCRAP METAL MARKETS

Montreal.

An easier tendency has again crept into the market for waste materials, and both ferrous and non-ferrous metals are now quoted at lower figures. In sympathy with the rubber market, scrap is now reduced, automobile tires are quoted at 50 cents per 100 lbs. With the exception of malleable scrap and pipe scrap, all other iron and steel waste is reduced, while brass and copper in all weights have new lower dealer prices. Dealers state that very little activity is yet apparent, and while a little encouragement was lent a few weeks ago with an improvement in the German market, this has again fallen off, leaving very little outlet now for materials. The domestic market has been quiet all during the late fall and winter months, and little improvement is looked for in this direction until the open weather of spring. Following are revised quotations:

SCRAP—	
Automobile Tires	0 50
Rubber Shoes	0 05
Yellow brass	0 05
Red brass	0 08¼
Light brass	0 03
Scrap zinc	0 03
Lead, heavy	0 04
Lead, tea	0 02
Light copper	0 08
Heavy copper	0 10
Wrought iron, R. Rd., No. 1 per gr. ton	10 00
Malleable scrap (ton)	8 00
Pipe scrap (ton)	6 55
Heavy melting steel	6 50 to 7 00
No. 2 busheling	3 00
Boiler plate	6 50
No. 1 machinery cast	20 00

PRICES SLIGHTLY REDUCED ON GALVANIZED SHEETS

Montreal.

Local distributors have again slightly reduced their quotations on American galvanized sheets for the most part, although former higher prices are still given by some houses. The reduction, as stated is slight, only ten cents per 100 lbs. on all gauges and not to the

same proportion as other western markets have recently announced. Business in all lines continues quiet but this condition is only seasonal at this time of year. There is still a certain amount of optimism expressed toward future trade by dealers, and further encouragement is now given by the report that prospects now appear brighter at primary centres. A better tone is now evident in southern steel centres owing to more enquiries coming to hand. Larger corporations and manufacturing consumers are now a little more interested than for some time past, and this condition, with the anticipated increase in general dealer trade, affords a much brighter outlook for business commencing with earlier spring months. Distributors state that further slight reductions may develop, but the market in general will not show any marked price declines, present levels being well down when compared with productive costs. Following are revised quotation

BLACK SHEETS—

10 gauge	4 00	4 50
12 gauge	4 10	4 60
14 gauge	4 40	4 70
16 gauge	4 50	4 80
18-20 gauge	4 55	5 05
26-gauge	4 60	5 20
22-24 gauge	4 65	5 25
28 gauge	4 75	5 35

GALVANIZED SHEETS—

10¾ ounce	6 65	7 60
28 gauge	6 25	7 20
26 gauge	5 95	6 85
22-24 gauge	5 80	6 60
20 gauge	5 65	6 45
18 gauge	5 65	6 35
16 gauge	5 50	6 35
14 gauge	5 35	6 35
2 gauge	5 20	6 35
10 gauge	5 10	6 35

English Standard	Queen's Head.	Fleur-de-lis
28 gauge	7 50	7 00
26 gauge	7 25	6 75
24 gauge	6 5	6 35
22 gauge	6 30	5 90
18-20 gauge	5 60	5 75

NOTE—These prices are for full bundles; an extra charge of 25c to 35c per 100 lbs. is made for broken lots. Extra for sheets 4 ft. wide, 50 cents per 100 pounds. Extra for sheets 3 ft. wide, 28 ga. and 10¾ oz. 25 cents per 100 lbs.

CANADA PLATES—

Dull.

18 x 24 x 52s	5 60
18 x 24 x 60s	5 80
18 x 24 x 75s	6 10

WELSH CANADA PLATES—

Polished.

18 x 24 x 52s	7 75
18 x 24 x 60s	8 00

BRIGHT TIN PLATES

20 x 28 x 100 lbs., bases	16 00
20 x 28 IC., 112s	16 50
20 x 28 IX., 112s	18 50
20 x 28 IXX, 56s	10 50
20 x 28 IXXX., 56s	11 25

TERNE PLATES

20 x 28 IC, 112s	16.00

COMPRESSION DISCOUNTS SHOW REVISION

Montreal.

Discounts on certain lines of compression goods now show a revision, bringing quotations on these lines slightly lower. Standard compression work is now quoted at less 45 per cent., former discount being 43 per cent. Bath cocks are reduced through the discount being changed from 30 to 35 per cent, while the gate or straight way are now less 25 per cent. There has been an easier tendency in certain raw material markets, now reflecting on the finished products. There is said to be only a moderate trade in these lines, but an improvement is looked for with the promising indications of more extensive building operations in the spring months. Following are revised quotations:

COMPRESSION WORK—

Compression work, standard	45%
Fuller work, standard	30%
Bath cocks, compression	35%
Basin cocks, Fuller No. 0	30%
Do., Nos. 1 and 2	30%
Flatway stop and waste cocks, standard.	54%
Roundway stop and waste cocks, std.	46%
Brass steam cocks, standard.	40%
Radiator valves, standard	58%
Do., removable disc	58%
Globe, angle and check valves, std.	25%
Gate or straightway	25%
Emco Globe Valves	33%
Emco check valves	33%
Jenkins Globe, angle, check and swing check	19%
Jenkins gate or straight way	25%
Jenkins iron body, globe and angle	15%
Jenkins iron body gate	33%

PLUMBERS' OAKUM IS AGAIN REDUCED

Montreal.

Plumbers' oakum again shows a reduction in price of 35 cents per 100 lbs., and is now quoted locally at $7.00 per 100 lbs. in bales of 50 pounds.

CLOSET OUTFITS ONLY NOMINALLY PRICED

Montreal.

Notwithstanding lower prices have appeared in other markets on certain closet outfits, local quotations on the various kinds still remain nominally unchanged. It is pointed out, however, that prevailing conditions in the local market, are such that where it is necessary to meet competition, or a fair-sized order, price concessions are offered without altering the general price levels. Business is described as only fair, but a general improvement is looked for, now that the month of February is closed. Following are unchanged nominal quotations:

CLOSET OUTFITS—

Closet, standard outfit	27 50
Do., with post hinge seat	28 50
Do., white vitro, vitreous china or enameled iron, with wash-down bowl and oak or mahogany post hinge seat	30 50
Do., reversible trap bowl, less spud	12 75
Do., add for siphon jet bowl	7 00
Do., for ⅜ in. valve on supply pipe	1 50
Deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	10 50
Do., reversible trap bowl, less spud	11 50
Do., siphon jet bowl, less spud	19 00
Do., Richelieu" bowl	9 00
Do., extra for spud	0 60
Do., oak, or oak-vitro tank, with fittings, less seat	14 25
Do., wood strip seat and cover	3 55
Do., post hinge seat and cover	4 25
Do., add for bar hinge	No extra
Do., white vitro, vitreous china, or enameled iron tank, with fittings, flush elbow and supplies less seat	18 50
Do., Vitrious China	20 00

FAIR ACTIVITY CONTINUES IN ENAMELED WARE

Montreal

Conditions in the enameled ware market are little changed, with a modern tone of activity reported by distributors. Buildings of the smaller class still demand these fixtures, and a continued improvement is looked for in this direction. Buildings that were commenced in the fall and earlier winter have required supplies during the following months and it is felt that operations, started after the opening of the year, will demand supplies from now on until the open spring weather, when a decided improvement should be felt. Quotations on all lines remain nominally unchanged at 33 1-3 per cent. off list prices, although there is a certain amount of unsettlement locally, with price concessions offered, especially for fair-sized orders.

Sinks, roll rim—

18 x 30	$23 00

Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$ 7 50	$ 7 40	$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70

Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide	51 40
Bath tubs, 5½ feet	57 10
Lavatories—	
17x19 in. Apron F139 or P4045	15 30
18x24 in. Apron F154 or P3845 or P3847	23 60
18x21 in. Apron F169 or P4205	17 60
17x19 in. Roll rim, F241 or P4345	12 60

Less 33 1-3 per cent.

LITTLE FURTHER CHANGE IN RANGE BOILER MARKET

Montreal

There have been few developments on the local market for range boilers since the adoption of the new list some few weeks ago. While most distributors at that time adopted the new selling basis there are a few wholesalers who are still selling at net prices. It was thought that this condition would be remedied before this date, and the new list prices and discounts adopted by all concerned. Current trading in these lines is still quiet, this undoubtedly being the chief reason for the present unsettled condition. It is pointed out that there is little variation between the new list prices with the discount, and the older net quotations, especially on the standard size boilers, and the general adoption of the new prices would mean little or no difference to the distributor, but would have a settling effect on the trade in general.

RANGE BOILERS:—

5	Gallon	$13.50
12	"	14.00
18	"	15.00
25	"	16.00
30	"	17.50
35	"	20.50
40	"	22.75
52	"	38.00
66	"	60.75
82	"	74.00
100	"	103.00
120	"	117.00
144	"	164.00
168	"	187.00
192	"	210.00

Discounts, Standard weight, 50 per cent.
Extra Heavy, 40 per cent.

GRADUAL IMPROVEMENT IN PIPE MARKETS

Montreal.

The anticipated improvement in sales of wrought iron and steel piping would seem to have set in, at least inquiries are now allowing dealers to expect increased trade in the near future. For some time past, current business has been described as very seasonal, only small sorting orders forming the movement. However, with the season now advancing, and indications that more interest is now being taken, the gradual betterment should continue. Quotations remain with list No. 54 the selling basis,

with conditions again somewhat unsettled owing to some price-shading in certain quarters, notwithstanding prevailing low levels.

BETTER FEELING NOTED IN TROUGH AND PIPE MARKETS

Montreal

There is now a better feeling among dealers in eavestrough and conductor pipe, although as yet there is little activity in forwarding dealer supplies. Booked orders have, to a great extent, been withheld over the winter months, but these are now coming to hand in satisfactory numbers. For the most part however, orders are somewhat smaller than in past years, but dealers are confident that a gradual improvement will be felt, and anticipate sales will continue over a greater period than is usual when the season opens. Prices on both products continue unchanged since the revision early in the New Year.

EAVESTROUGH—

O.G. Round and Half-round, per 100 ft., 8 in., $16.90; 10 in., $18.70; 12 in., $22.20; 15 in., $29.80; 18 in., $37.80.

O.G. Square bead, per 100 ft.: 8 in., $15.90; 10 in., $17.70; 12 in., $21.20; 15 in., $28.80; 6 in.. $36.80.

Discount 70|10 per cent.

Conductor Pipe, Round, Plain and Corrugated, per 100 ft.: 2 in., $18.40; 3 in., $23.30; 4 in., $29.60; 5 in., $40.00; 6 in., $49.00.

Discount 70|10 per cent.

CONDUCTOR ELBOWS—

Plain or corrugated, price per doz.
2 in., $5.25; 3 in., $6.00; 4 in., $10.50; 5 in., $24.00; 6 in., $29.00.
Discount 60 per cent.

AVERAGE VOLUME OF PIPE FITTING SALES

Montreal

Current quotations on the various lines of pipe fittings are unchanged since the revision of a few weeks ago. The volume of business is said to be of average proportions, but principally of small sorting orders. A steady improvement is now anticipated, dealer stocks being undoubtedly low and consuming demand should increase in the following weeks. Unchanged prices and discounts are as follows:

PIPE FITTINGS—	Per Cent.
Cast iron fittings	30
Bushings, cast	32
Bushings, malleable	32
Flanges	40
Plugs	30
Flange unions	30
Malleable unions	47
Dart unions, black	33
Do., galvanized	13
Nipples, ⅛ to 4" close and short	50
Do., long	60
Do. 4½ to 8" close and short	40
Do., long	50
Couplings, 4" and under	30
Do., 4½" and larger	10

Pound Goods —	Blk.	Galv.
Class A	0 54	0 67
Class B	0 20	0 28
Class C	0 13	0 20

SOMEWHAT LESS ACTIVITY IN HEATING SYSTEMS

Montreal.

In recent weeks business in radiators and boilers has experienced a slight falling off, the market being described as fairly active during the month of January, but quieter during the month just closed. According to a local manufacturer, this could be explained for the reason that in the opening month, buildings under construction in the fall and early winter required supplies at that time, while construction now under way would not be advanced to the stage where heating systems were required until later on. It was his opinion that little increased activity would now be felt until the earlier spring, when the summer building would also be a stimulating factor. Quotations on all lines are unchanged, at following prices and discounts:

Radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

45 in. to 38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60. Discount, 59% for hot water and 60% for steam.

Wall Radiators—5 ft., $1.15; 6 ft., $1.10; 7 ft., $1.05; 9 ft., $1.05; 12 ft., $1.05. Discount 56%.

Boilers.—Round hot water boilers, low base only (high base discontinued) sizes from 0 to 10, 64 per cent. off list.

Square or sectional hot water or steam boilers, 15-in., 20 per cent.

For Ontario Government trimmings add 5 per cent.

Square or sectional water boilers, 19-in to 36-in. 20 per cent. off list.

Square or sectional steam boilers, 19-in. to 36-in., 20 per cent. Ontario Govt. trimmings, 10 per cent.

Round steam boilers, standard trimmings, 28 per cent. off. Ontario Government trimmings, 25 per cent.

All prices f.o.b. Toronto, Montreal, Guelph, Hamilton, St. Catharines or Brantford.

NO FURTHER CHANGE IN COTTON WASTE MARKET

Montreal.

Cotton waste quotations remain at the revision of two weeks ago, when the cream polishing and the higher grades of white were slightly reduced. There also is little change in the raw cotton market, although a slightly easier tendency crept in after the opening of the New Year. The present season is said to be the quiet period for these products and sales continue in fair volume considering this. Unchanged prices are as follows:

COTTON WASTE—Cream polishing, 18c. per lb.
White—XXX extra, 16c.; XX grand, 15c., XLCR, 14c.; X Empire, 13c.; X press, 11½c.
Colored—Fancy, 13½c; Lion, 12c; Popular, 9c; Keen, 7½c.
Wool Packing—Arrow, 25c; Axle, 22c; Anvil, 18c.
Dominion Wipers—White cotton, 20c; colored cotton, 14c.

MODERATE TRADE IN SOIL PIPE AND FITTINGS

Montreal

There have been few developments recorded in the market for soil pipe in recent weeks. In the closing months of last year a reduction of quite substantial proportions was announced on these lines, bringing prevailing prices to a reasonably low level. Competition was at that time declared a deciding factor in reducing quotations, and during the following quiet months this has not played such a prominent part in the market. Distributors state that business is now quiet with little improvement looked for until the open weather in the following months a little later on. Following are unchanged discounts:

SOIL PIPE—	
2 and 3 inch	47½%
4 inch	50%
5 and 6 inch	47½%
Fittings—	
2 to 6 inch	50-10%

BOILER TUBE TRADE OF MODERATE NATURE

Montreal

Current quotations on boiler tubes remain unchanged, with trade described as seasonably dull. In the earlier weeks of the year, business experienced a slight revival owing to repair work under way for spring activities, but in the past few weeks this has fallen off to some extent. While quotations are for the present holding unchanged, it is felt in some quarters that prices are not yet down to a corresponding level with replacement costs. Prevailing quotations on raw products are now within reasonable reach of pre-war levels, while boiler tubes are still at least 100 per cent. in advance. Therefore further recessions in prices would not be surprising. It is further pointed out that lower prices at the present time would undoubtedly assist trade, especially in the direction of repair work.

BOILER TUBES—	Seamless	Lapweld
1 inch	24 70	.....
1¼ inch	24 50	.....
1½ inch	24 00	.....
1¾ inch	26 00	26 00
2 inch	24 50	20 50
2¼ inch	27 75	23 50
2½ inch	32 50	24 50
3 inch	40 00	30 50
3½ inch	52 50	34 75
4 inch	65 00	44 00

IRON AND STEEL PRICES REMAIN AT RECENT REVISION

Montreal

With a noticeable improvement at primary steel centres, there is said to be little or no increased activity locally up to the present. In the opening weeks of February, there was a turn for the better, when inquiries were slightly more numerous, but these have again fallen off to an extent. There is, however, no reason for discouragement, according to local distributors, and the month of March is looked upon as the period when a gradual but healthy improvement will be felt. In primary markets, there is still a better feeling, the commencement of which developed a few weeks ago. Recent reports indicate that the turn has been reached, and operations should continue to increase from now on.

Quotations remain at revised levels of a few weeks ago, when prices on the local market showed a recession of 25 cents per 100 lbs., on the various lines of bar iron and steel. These prices are generally considered as low as might be expected with prevailing productive costs, and further recessions, if any, will in all likelihood be of a very minor nature, for some time at least.

IRON & STEEL—	
Common bar iron, 100 lbs.	2 65
Refined iron	3 15
Iron finished machinery steel	2 70
Mild steel	2 65
Single reeled machinery steel	4 75
Band steel	2 65
Spring steel	4 25
Sleighshoe steel	2 65
Tire steel	2 85
Toe calk steel	3 55
Harrow tooth steel	2 80
Mining tooth steel, per lb.	0 21½
Black Diamond tool and cast steel	0 21½

NOTE—Refined iron is approximately $1.50 per 100 lbs. over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs. extra.

EASIER TONE CONTINUES IN COPPER PRODUCTS

Montreal.

Brass and copper products still display little activity on the local market, with a somewhat easier undertone now recorded. Metals on primary markets still fail to recover from their recent easier trend, and while this, up to the present, has not reflected on the finished products, slightly lower prices in the near future would not be surprising. Although trade is at the present time on the quiet side, an improvement is looked for with the close of the month of February. Prevailing prices locally are as follows.

	Base
BRASS—	
Sheets	0 25
Rods, ½ to 1 inch, round	0 23
Tubing, seamless	0 32
COPPER—	
Rods, ½ to 2 inch	0 30
Soft sheets, plain, 16 oz. and heavier lb.	0 34
Plain tinned, 16 oz. and heavier, lb.	0 39
Polished and tinned, 16 oz. and heavier, lb.	0 43
Tubing, lb.	0 34

Above prices are for full sheets or bars. Cuts 5c. per lb. higher.

IMPROVEMENT EXPECTED IN CORRUGATED SHEETS

Montreal

There is little or no change on the current market for corrugated sheets, with business described by local distributors as still quiet. With the month of February now passed, however, the present month is looked upon as the period when a gradual improvement will be felt. A slightly easier tendency is now noted in some quarters, owing to the easier levels appearing on flat sheets in recent weeks, but with the present quiet condition of trade, dealers look for little recession in prices in the immediate future. Following are list prices and discounts:

CORRUGATED SHEETS—	Per 100 sq. ft.
No. 28 gauge	6 50
No. 26 gauge	7 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50

Less 10 per cent.

Lighter than 24 gauge and wider than 27 inches, 75c a square extra.

LITTLE STABILITY TO INGOT METAL MARKETS

Montreal.

The metal markets generally have not shown any improvement, and certain lines, such as tin and copper, have been decidedly weak. There is not much stability to the markets at present, but it would seem as though the declines in most cases had been slightly overdone.

TIN.—London market has been subjected to severe pressure owing to bear operations on the part of a Dutch syndicate, with the result that prices have touched a new low point in about ten years. At the moment it is impossible to say how far the decline will go, but at present the bears have it all their own way. Local market is naturally weaker with stock price 35 cents.

COPPER.—London has again declined and New York is also lower, owing to demand falling off and forced sales by second hands. It is now possible to buy at 13 cents delivered for prompt, with a slight premium for forward. Local market is dull at 16¼ cents for electro, and 16¼ cents for casting.

LEAD.—The American market remains quiet at $4.40 East St. Louis, but London is again lower owing to large arrivals of foreign lead. It is realized, however, that the price in London has been too high. Locally this metal is quiet and easier at 6¾ cents.

SPELTER.—This is the only metal in London which has not declined during the past week, and it speaks well for the strength of this metal, that it should have remained steady. East St. Louis remains firm at $4.50, but whether it will be able to maintain this level is impossible to say. Prices are unchanged at 7¼ cents.

ANTIMONY.—Antimony refuses to show any activity, remaining dull with very little demand. Quotations remain unchanged, Chinese being quoted at 6¼ cents, high grade English at 7¾ cents.

ALUMINUM.—This metal continues in an almost listless state on the market, it still being the dullest of metals. Quotations are unchanged at 25 cents.

TORONTO MARKETS

TORONTO, March 1. — Price developments on the current markets include another change in compression goods showing reductions on standard brass compression work, compression bath cocks, brass steam cocks and basin cocks. Discounts on other lines remain unchanged. Easier prices are also noted on various grades of solder, including guaranteed, strictly and wiping. This revision reflects the easier tone in the primary metals. A further reduction of ten cents per cwt. has been recorded in the base prices on bar iron and steel. Uncertain prices are now evident on heavy corrugated sheets, with nominal quotations being shaded on gauges heavier than 26c, according to specifications and delivery required. An easier tone is noticeable in the primary copper markets, which is reflected in semi-finished products in some quarters, although local quotations remain generally unchanged. Variable quotations attract attention on closet combinations, with the present range in prices being apparent during recent weeks. Prices on other sanitary and heating materials have recorded no additional change.

ANOTHER CHANGE IN COMPRESSION DISCOUNTS

Toronto.

Another revision in the discounts on certain lines of compression goods has been recorded. This current change affects standard compression work, compression bath cocks, brass steam cocks, and basin cocks. The extent of the reduction varies between 5 to 10 per cent. on the different products, being greater on such lines as basin cocks than on standard compression work. In announcing the revision, manufacturers state that some easing in price on the primary raw material markets has been taken into consideration, together with the decision to reduce quotations to the lowest possible point for anticipated future business. Following are revised discount levels:

VALVES—	Per cent.
Compression work, standard	45
Fuller work, standard	30
Bath cocks, compression	35
Do., Fuller	25
Flatway stop and wastecocks, stand'd	54
Roundway stop and waste cocks, std.	46
Brass steam cocks, standard	43
Globe, angle and check valves, std.	25
Mueller globe, angle and check	25
Mueller composition disc steam valves	33
J. M. T. valves, screwed	20|10
J. M. T. C., screwed	25|10
J. M. T. gate valves, screwed	25|10
Jenkins gate or straightway, screwed	25|10
Jenkins globe, screwed	19|10
Radiator valves, standard	58
Do., removable disc	58
Emco, J. D., rad. valves, screwed	33
Emco swing check, ⅜" and ½"	40
Do., Do., other sizes	33
Webber gate valves, screwed	30
Emco globe valves, std., screwed	25
Emco globe valves, J. D., screwed	33
Basin cocks—	
No. 0 and 1, Fuller pattern	30
Quick opening No. 3633	50
No. 3623, plain or index handle	34

EASIER PRICES NOTED ON GUARANTEED SOLDER

Toronto

Some easier prices have now developed in guaranteed and other grades of solder, the extent of the reduction varying several cents per lb. This places the average local quotation at 26 cents, and reflects the recent trend in the basic market conditions. Other lead and zinc product prices, however, remain at unchanged levels, with little variation having been recorded in prevailing conditions. Business is of a moderate character, but described as fairly good for this time of the year. Following are the revised price levels:

LEAD AND ZINC GOODS—	
Lead, pipe, list, per lb.	0 12½
Lead, waste pipe, list, per lb.	0 13½
Do., over 8 in., list, per lb.	0 14½
Lead pipe is subject to a discount of 10 per cent.	
Lead traps and bends,	10 per cent.
Lead sheets, 4 to 6lbs., sq. ft. in rolls, lb.	0.09
Cut sheets, ½c to ¾c lb. extra and cut sheets to size, 1c lb. extra.	
Solder wire, per lb.	0 32½
Do., commercial, lb.	0 22½
Do., strictly, lb.	0 21
Do., guaranteed, lb.	0 24
Do., wiping, lb.	0 21
Zinc sheets, per lb.	0 09 0 10

UNCERTAIN PRICES ON HEAVY CORRUGATED

Toronto

The situation in corrugated sheets is worthy of special attention. The quiet trade conditions have resulted in an easier market tone being recently apparent in these products, and while quotations and discounts nominally remain unchanged, yet it is noticeable that prices on the heavier gauges are now practical-

(Continued on page 30)

Mueller Drum Traps

If you could buy a better Drum Trap from a concern you know is reliable, for the same price as the ones you now use, you would be likely to consider the matter favorably at least.

Mueller for many years has been making Quality Goods only. When a new product is added to the line, certain tests have to be passed before the name "*MUELLER*" is allowed on it. In the case of Mueller Drum Traps, each one is tested under pressure before leaving factory.

4″x 8″ is fitted with brass cover with sunken square as shown above, or with raised square on cover if desired.

2″x 6″ size is furnished with extension cover as illustrated.

Your orders will be given preferred attention.

H. MUELLER MFG. CO., LIMITED, SARNIA, ONT.

Water, Plumbing and Gas Brass Goods and Tools.

American Factory at Decatur, Illinois, U. S. A. Branches, New York and San Francisco

Mueller Metals Co., Port Huron, Mich., Makers of "Red Tip" Brass Rod; Brass and Copper Tubing; Forgings and Castings in Brass, Bronze and Aluminum; Die Castings in White Metal and Aluminum; also Screw Machined Products.

TORONTO MARKETS

(Continued from page 28)

ly open. The base price of $6.50 on the 28 gauge, with a discount of 10 per cent., is still in effect. The U. S. 26 gauge has been added to the list with a quotation of $8.00 per 100 square feet. Owing to competition, prices on 24 gauge and heavier, have been withdrawn in some quarters, while an open market is recorded in others.

Corrugated iron in heavier gauges than 26, is now being quoted according to specifications and delivery required. For smaller purchases, the following nominal price list generally prevails. Larger shipments, however, will now be governed by the above revised conditions:

CORRUGATED SHEETS—	Per 100 Sq. Ft.
No. 28 gauge	$6 50
No. 26 gauge	7 00
No. 26, U. S. gauge	8 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50

Less 10 per cent.

Lighter than 24 gauge and wider than 27 inches, 75c a square extra.

FURTHER RECESSION IN BAR IRON BASE PRICES

Toronto

Further price recessions are noted this week in the iron and steel market, the base price on bar iron having receded another ten cents per 100 lbs. This reduction is generally attributed to the current market situation where price shading to secure nominal business has resulted in this level having become more general.

Recent reports from the primary markets indicate that better buying in iron and steel is being sustained, with new business being recorded and the ratio of current mill operations both pointing to a reviving demand of a fairly general character. The local market is described as fair for this time of the year. Following are the average local quotations:

IRON AND STEEL	
Mild steel bars, base	2 75
Mild steel bands, 3 16 in. base	3 25
Bar iron, base	2 75
Angle iron, base	2 85
Horseshoe iron	3 60
Tire steel	3 35
Spring steel	5 50
Crucible cast sheet steel	30 00
Mining drill steel	18 50
Cast tool steel, medium	18 00
Cast tool steel, high grade	31 00
Sleigh shoe steel	2 85
Norway iron	12 50
Toe caulk iron	4 00
Hoop steel	3 75

SHEET TRADE MODERATE WITH BETTER OUTLOOK

Toronto

Trade in the domestic sheet markets continues to be of a moderate nature, and further price recessions are noticed in those centres where slightly higher levels have been prevailing. This change brings the average quotations on a more uniform level in keeping with the prices given below, which became effective locally following the recent announcement of these reduced levels. The outlook at primary steel centres in the south, is primed with optimism which is backed by an increase in the volume of inquiry and substantiated by keener buying interest. The sheet market generally, is therefore in a moderate position which is described as fairly satisfactory for this time of the year. The stimulation of activity in industrial fields is expected to reflect in future improved sheet business, while railroad, automobile and construction fields are already showing signs of betterment. The tin plate mills are reported operating at a high rate of output. Following are the current prices on the local markets:

BLUE ANNEALED—		
10 gauge, base	3 75	4 50
12 gauge	3 80	4 55
14 gauge	3 85	4 60
16 gauge	3 90	4 65
BLACK—		
18-20 gauge	4 30	5 05
22-24 gauge	4 35	5 10
26 gauge	4 40	5 15
28 gauge	4 50	5 25

Charge of 25c. per 100 lbs., is made for less than case lots. An extra 10c per 100 lbs. is also charged on sheets 26 in. wide.

GALVANIZED—	Queen's Head.	Fleur-de-lis.
28 gauge	8 00	7 50
26 gauge	7 75	7 25
24 gauge	7 35	6 85
22 gauge	6 90	6 40
18 and 20 gauge	6 75	6 25
Premier and Apollo—		
10¾ oz.	6 00	6 75
U. S. 28, base	5 60	6 35
U. S. 26	5 30	6 05
22 and 24	5 15	5 90
18 and 20	5 00	5 75
16	4 85	5 60
12 and 14	4 70	5 45

An extra is now charged on galvanized sheets, 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20 cents per 100 pounds. Other gauges show no change for different widths.

An extra 40 cents per 100 lbs., is charged for Keystone and Premier brands copper-bearing sheets.

PLATES, CANADA—	Per box
Dull, 60 sheets	5 30
Ordinary, 52 sheets	5 25
PLATES, COKE TIN—	
IC, 20 x 28, 112 sheets	13 50
IX, 20 x 28, 112 sheets	16 50
IX, 20 x 28, 56 sheets	9 00
PLATES, CHARCOAL TIN —	
IX, 20 x 28, 112 sheets	14 00
IXX, 20 x 28, 56 sheets	16 00
PLATES, TERNE—	
IX, 14 x 20, 112 sheets	12 00

EASIER PRIMARY TONE IN COPPER MARKETS

Toronto

Current prices on copper and brass sheets, rods and tubing, at present remain unchanged. While it is stated that the weaker tone in the primary copper markets may affect semi-finished products, the market tendency is described as having been anticipated to some extent by manufacturers and distributors when announcing the prevailing quotations. Prices on certain finished copper goods have recently recorded slight recessions. The following are the average quotations on the local markets:

BRASS—	
Sheets base, per lb.	$ 0 23
Rods, base, per lb.	0 20
Tubing, base, per lb.	0 25
COPPER —	
Rods, base, per lb.	0 29
Soft sheets, plain, 1 oz. and heavier, lb.	0 30
Do., plain tinned, 16 oz. and heavier, lb.	0 37
Do., polished and tinned, 16 oz. and heavier, lb.	0 42
Tubing	0 29

BETTER TRADE NOTED IN BOILER TUBES

Toronto.

While the current condition of the boiler tube market is described as nothing extraordinary, yet an improvement in the volume of prevailing business has been recorded in some quarters. Boiler tubes are reported to be moving well, in the smaller sizes, with trade quite moderate in the larger sizes. This betterment has been evident since the recently revised prices on tubes came into effect, but is naturally expected to develop at this time of the year. Quotations are generally unchanged at the following levels:

BOILER TUBES

Size	Seamless	Lapweld
1 inch	24 75	—.
1-¼ inch	24 50	.....
1-½ inch	24 00	.....
1-¾ inch	26 00	.....
2 inch	24 50	20 00
2-¼ inch	27 75	23 00
2-½ inch	32 50	23 75
3 inch	40 00	30 00.
3-¼ inch	50 00	32 50
3-½ inch	52 50	34 25
4 inch	65 00	43 50

LITTLE CHANGE NOTED IN ASBESTOS PRODUCTS

Toronto

The primary trend of the asbestos markets is described as showing very little variation from recent reports, with current demand of an average nature for this time of the year. Recently revised prices and discounts on these products are holding unchanged, at the following levels:

ASBESTOS PRODUCTS—

Pipe Covering—

Air cell, 4 ply..... 55 per cent. off list.
Air cell, 3 ply .....60 per cent off list.
Air cell 2 ply .....65% off standard list.
Boiler Covering .....$1.90 per bag.
Asbestos Sheathing .....$8.00 per 100 lbs.
F.o.b. Toronto.

EXPECT IMPROVEMENT IN ENAMELLED MARKETS

Toronto

A moderate demand for enamelled ware products such as sinks, bath, urinals, etc., is stated to be in evidence, owing to the finishing of many erections which were commenced last Fall. An early start has also been made in several districts on Spring building, and with the advent of seasonable weather, brisk activity in construction work is expected to be reflected more or less in the future enamelled ware market conditions. Prices and discounts are generally unchanged at the following levels:

ENAMELLED WARE—

Enamelled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.			51 40
Do., 5½ ft.			57 10
Lavatories—			
17x10" Apron F139 or P4045			15 30
18x24" Apron F154 or P3845 or P3847			23 60
18x21" Apron F169 or P4205			17 60
18 x 21" Roll Rim, F197, F199 or P4655-6			15 40
17 x 19" Roll Rim, F241 or P4345			12 60
Sinks, Roll Rim, 16x24 in.			18 10
Do., 18 x 30 in.			23 00
Do., 20 x 30 in.			24 70
Sinks, Flat Rim—	1 only	2 only	3 only
16 x 24	$7 60	$7 70	$7 80
18 x 30	8 50	8 60	8 70
20 x 30	9 70	9 80	9 90

Above prices list, less 33 1-3 per cent.

All steel enamel baths, 4 and 4½ ft.	$14 00
Do., 5 ft.	15 00
Do., 5½ ft.	16 75

These quotations are net.

(Continued on page 32)

PIPE FITTINGS

Domestic **Export**

"IMICO" Pipe Fittings

are known throughout the British Empire
for the quality they possess

Malleable Fittings

of our brand mean fittings made of refined air furnace Malleable Iron, properly annealed and threaded to gauge.

Cast Iron Fittings

stamped with our trade mark denote fittings made of the highest quality of Cast Iron, reamed and tapped with perfect threads.

International Malleable Iron Company, Limited

GUELPH, ONTARIO

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Winnipeg, Man.—Messrs. Harry F. Moulden & Son, Confederation Life Bldg.
St. John, N.B.—Messrs. H. G. Rogers, Limited, 147 Prince William St.
Halifax—Mr. Geo. D. Hatfield, Bedford Chambers.

TORONTO MARKETS

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REVISED PRICE LEVELS MAINTAINED ON WASTE

Toronto.

Conditions in the cotton waste markets generally remain unchanged, with the recently revised levels still in effect. The primary markets have recorded some slight fluctuations, but these movements are described as not being of sufficient momentum to reflect in cotton waste quotations. The recent reductions noted in previous issues of Sanitary Engineer, indicate the trend of basic conditions. Current trade is described as average for this season. Following are the prevailing prices:

Cream, polishing	0 18
White, XXX	0 18
XX	0 16
X	0 15
XC	0 14
XXX, extra	0 16
XX, grand	0 15
XLCR	0 14
X, Empire	0 13
X press	0 11½
Colored, No. 1	0 13
No. 17	0 12
No. 1A	0 11
No. 1B	0 10
Fancy	0 13½
Lion	0 12
Standard	0 10½
Popular	0 09
Keen	0 07½

Above lines subject to trade discount for quantity.

ADD FIFTEEN GALLON RANGE BOILER TO LIST

Toronto.

There is very little variation to record in the range boiler markets, with current trade continuing of a quiet nature at this time of the year. While it is claimed that the recently revised list prices and discounts are not yet general in certain quarters, yet the net prices on these products are practically the same in each instance. The fifteen-gallon size has also been added to the list at a quotation of $14.00. The smaller sizes are said to be practically the only boilers showing any signs of activity. Following is the nominal list, with discounts for standard and extra-heavy weights:

RANGE BOILERS

Size.	List Price.
5-gallon	$13 50
12 to 15 gallon	14 00
18-gallon	15 00
25-gallon	16 50
30-gallon	17 50
35-gallon	20 50
40-gallon	22 75
52-gallon	38 00
66-gallon	60 75
82-gallon	74 00
100-gallon	103 00
120-gallon	117 00
144-gallon	164 00
168-gallon	187 00
192-gallon	210 00

Discounts, Standard weight, 50 per cent.
Extra heavy, 40 per cent.

VARIED QUOTATIONS ON CLOSET COMBINATIONS

Toronto.

As pointed out in the previous issue of Sanitary Engineer some variation has been noted on closet combinations. The higher figures are now being generally quoted, but it is, however, admitted that keen buyers or purchasers of fair sized orders, can generally obtain the lower range. Conditions are described as fairly satisfactory for this season of the year, but renewed activity in building circles is expected to reflect a better demand for combinations and fixtures with the advancement of the Spring and Summer seasons. Following are the local quotations, showing the variation on the market:

CLOSET COMBINATIONS, low down	each
Closet, standard outfit, oak	26 00 27 75
Do., with post hinge seat	26 75 28 40
Do., mahogany Vitro or Pussyfoot, with mahogany post hinge seat and cover	28 75 30 25
Do., vitreous china, with oak post hinge seat and cover	29 25 30 75
Do., vitreous china, with mahogany post hinge seat and cover	29 50 31 00
Do., white Vitro or Pussyfoot, with ma-oak post hinge seat and cover	29 25 30 75
Do., white Vitro or Pussyfot. with mahogany post hinge, seat and cover	29 50 31 00
Do., enamelled iron tank with oak post hinge seat and cover	29 25 30 75
Do., enamelled iron tank with mahogany post hinge seat and cover	29 '50 31 00
Additions or reductions to above	
Add for reverse trap bowl	1 25
Add for syphon jet bowl	7 00
For ⅜ in. valve on supply pipe	1 50
Deduct for supply pipe	0 70
Deduct for floor flange and bolts	0 80
CLOSET BOWLS—	
Washdown bowl, less spud	10 00
Reversible trap bowl, less spud	11 25
Syphon jet bowl, less spud	17 00
"Richelieu" bowl	10 50
CLOSET TANKS, low down	
Oak, Vitro or Pussyfoot tank with fittings, less seat	13 10
White Vitro or Pussyfoot tank with fittings, flush elbow and supply	15 25
Vitreous china tank with fittings, flush elbow and supply	18 00
Enamelled iron tank with fittings, flush elbow and supply	18 00
CLOSET SEATS—	
Oak wood strip seat and cover	3 25
Oak post hinge seat and cover	4 00
Mahogany finish post hinge seat and cover	4 25

IMPROVEMENT LOOKED FOR IN SOIL PIPE TRADE

Toronto

While conditions are naturally of a moderate nature in soil pipe and fittings at this time of the year, renewed activity in these products is generally looked for in the near future. With weather conditions showing signs of improvement, preparations are now under way in many quarters for the commencement of moderately extensive building programs, and activity in this direction is naturally expected to reflect on the future demand for soil pipe. Primary market conditions remain unchanged, with the discounts on the domestic centres still showing signs of variation. Following are the average local quotations:

SOIL PIPE—	
2 inch	40 per cent.
3 inch	40 per cent.
4 inch	40-5 per cent.
5 and 6 inch	40 per cent.
8 inch	net
FITTINGS—	
2 to 6 inch	50|5 per cent.
8 inch	net

MODERATE TRADE NOTED IN RADIATORS

Toronto.

Trade in radiators and boilers is of a quiet nature at present, a condition which is ascribed to the fact that new buildings have not reached the stage where radiation is yet required. While general building is apparent in many centres, this early activity is centered around many erections which were commenced last Fall. Heating requirements in this direction have been generally taken care of during the past two months. However, with the anticipated stimulation in construction work, both manufacturers and distributors of radiation look for improvement in the future demand. Following are the unchanged quotations on the domestic markets:

RADIATORS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60.

Discount on 2, 3, 4 and 5-column standard sizes, 59 per cent. for water and 60 per cent. for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 51 per cent. for water and 52 per cent. for steam.

Discounts on 1-column hospital size, water 33 per cent.; steam 34 per cent.

Wall radiators—5 ft. $1.15; 6 ft. $1.10; 7 ft. $1.05; 9 ft., $1.05; 12 ft., $1.05. Discount 56 per cent.

NOTHING REMARKABLE IN PIPE FITTINGS TRADE

Toronto.

The current demand for pipe fittings generally shows a fairly moderate number of small orders, which are chiefly of a sorting nature. The total volume however, is described as "nothing remarkable." Improvement is looked for in this direction, especially with any noticeable expansion in future building operations during the Spring and Summer periods. Following are the general average quotations which remain at the recently revised discounts on these products:

PIPE FITTINGS—	Per cent.
Cast iron fittings	30
Plugs, cast iron	30
Do., solid	30
Do., countersink	30
Bushings, malle.	32
Do., cast	32
Unions, ¼ in. to 2 in.	47
Do., 8 in., 2¼ to 4 in.	47
Flanged unions, std.	30
Flanged fittings	30
Dart unions, blk., ¼ to 2 in.	33½
Do., ⅛ in., 2¼ to 4 in.	23
Do., galvd., add to black	30
Nipples, blk., and galvd. ⅛ to 4 in. close and short	50
Do., 4½ in. and larger	40
Do., long, ⅛ in. to 4 in.	60
Do., 4½ in. and larger	50
Do., running thread	30
Couplings, 4 in. and under	30
Do., 4½ in. and larger	10

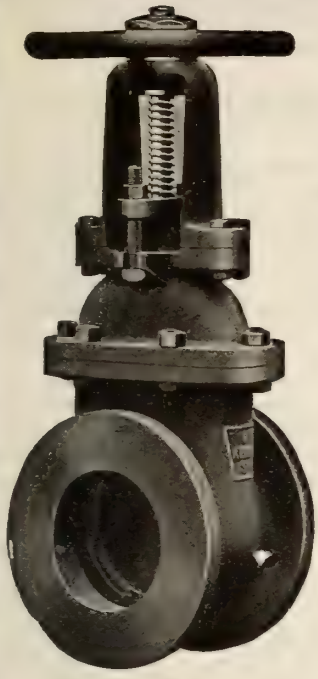
MALLEABLE FITTINGS—		
Class A	0 54	0 67
Class B	0 29	0 28
Class C	0 13	0 20

WROUGHT PIPE CONDITIONS RECORD IMPROVEMENT

Toronto.

Present conditions in the pipe markets are described as distinctly stronger than those which prevailed in the piping industry in general during the month of January. With the open season, there has developed a fair amount of current business and manufacturers state that the general situation now looks much improved. Owing to the remarkable variance in primary market conditions since last year, many distributors have now ceased to compare either business or values with last year's figures, and are content to refer to the previous month's records as a basis for gauging progress.

(Continued on page 34)



Kerr Valves

Give

Character to Work

They reflect credit on the man who specifies them, the man who installs them, and they give complete satisfaction to the men who use them.

Take the Kerr Gate Valve illustrated, for instance: It is well designed; strong and sturdily made; note the compact and narrow face to face dimensions; observe the accessibility of the stuffing box; the strong, generous flanges and the properly spaced bolting.

KERR VALVES ARE GOOD VALVES

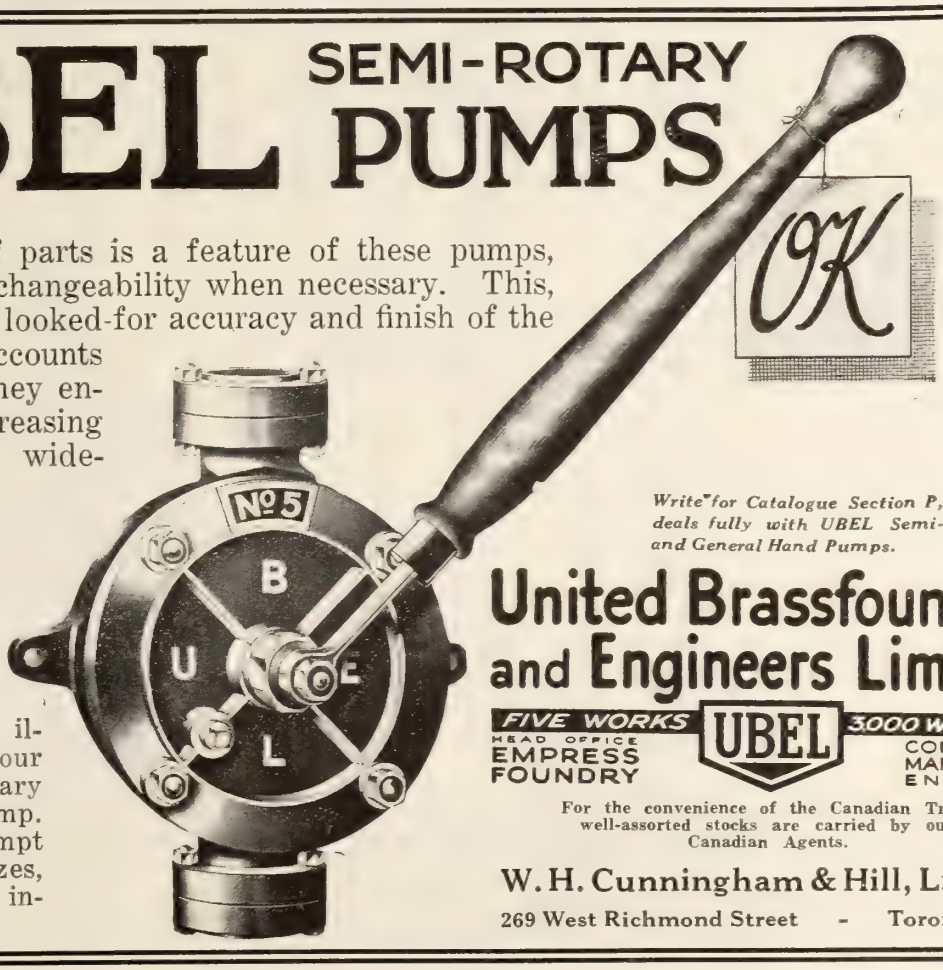
Catalogue No. 5 on application.

The Kerr Engine Co., Limited

Valve Manufacturers - Walkerville, Canada

UBEL SEMI-ROTARY PUMPS

Standardization of parts is a feature of these pumps, guaranteeing interchangeability when necessary. This, combined with the looked-for accuracy and finish of the UBEL product, accounts for the fact that they enjoy an ever-increasing popularity and widespread demand.



The accompanying illustration shows our Fig. P 1 Semi-Rotary Double-Acting Pump. We can give prompt shipment of all sizes, from ½ in. to 3 in. inclusive.

Write for Catalogue Section P, which deals fully with UBEL Semi-Rotary and General Hand Pumps.

United Brassfounders and Engineers Limited

FIVE WORKS — HEAD OFFICE EMPRESS FOUNDRY — UBEL — 3000 WORKERS — CORNBROOK MANCHESTER ENGLAND

For the convenience of the Canadian Trade well-assorted stocks are carried by our Canadian Agents.

W. H. Cunningham & Hill, Limited

269 West Richmond Street - Toronto, Ont

TORONTO MARKETS

(Continued from page 32)

EASY TONE REMAINS IN SCRAP METALS

Toronto

Both large and small consumers are now purchasing very little scrap iron or steel. Quotations are marked by an easier undertone as noted in recent reports.

SCRAP MATERIALS—

Scrap Iron		
Gross Tons —		
Heavy melting steel (Hamilton)	11 50	$12 00
Borings and turnings	2 00	3 00
Rerolling rails	10 50	11 50
Scrap pipe	6 00	7 00
No. 1 railroad wrought	10 25	11 25
Steel turnings (Hamilton)	6 50	7 50
Agricultural malleable	10 00	11 00
Railroad malleable	11 00	12 00
Net tons —		
No. 1 cast	15 75	16 75
Stove plate	11 50	12 00
Grate bars	10 50	11 00
Standard car wheels	13 50	14 00
Scrap Metals.		
Heavy copper and wire	10 50	11 00
Light copper	8 00	9 00
No. 1 composition	9 00	10 00
No. 1 comp. turnings	00	7 00
Light brass	3 00	3 50
Heavy yellow brass	5 50	6 00
Heavy lead	4 50	4 75
Tea lead	2 00	2 50
Scrap zinc	4 00	4 25
Scrap Rubber.		
Boots and shoes	2 25	2 75
Lumbermen's ruber boots	1 50	2 00
Auto tires	0 50	1 00
Solid tires	0 75	1 25

EASIER TONE AND LOWER PRICES FEATURE METALS

Toronto.

General conditions in the ingot metal markets are of a quiet nature and uninteresting from the lack of new developments. Easier price levels are now more generally noted, especially in copper, tin, and antimony. The copper market is described as dull and hopeless, while other metals record very little variations, a lack of both interest and demand contributing to the prevailing easy tone.

COPPER.—Dull and hopeless are the current phrases covering the condition of the copper markets. Large supplies of copper are still available, while the demand remains of a very moderate character. Price shading among producers in the south has recently developed, this condition reflecting the easier tone in general. The local quotation remains at 17½ cents.

TIN.—Fluctuations in exchange coupled with the waiting policy adopted by consumers have resulted in some easier price levels being announced on tin in the domestic markets. The average quotation is 35½ cents, and though some inquiries are evident, actual business is moderate.

LEAD.—The tone of the lead market is quiet at present, with little variation having been recorded. Prices remain fairly steady, while current buying is in small quantities. The local quotation is $6.75.

SPELTER—Quiet conditions also prevail in spelter, with the consuming demand being very light, and few sales having been recorded. The local average price is a little easier, now being quoted at $7.00, a decline of 25 cents.

ANTIMONY.—This market is dull and unchanged, with prices being a little lower than have recently been evident. Adequate supplies are stated to be on hand, with little demand now apparent. The average prices are between 7 and 9 cents.

ALUMINUM.—The aluminum market remains quiet, with the hope for improvement which was recently held out, now having abated. The local quotations are unchanged at 27 cents.

WINNIPEG MARKETS

WINNIPEG, March 1.—Price changes on the current sanitary and heating material markets are of a restricted nature this week. A more optimistic outlook now generally prevails regarding the prospects for increased activity in plumbing and steamfitting lines with the advent of seasonable weather conditions. A slight reduction is apparent in the quotation on the 30-gallon standard size range boiler, but the majority of other primary goods continue with unchanged price levels.

LOOK FOR BETTER DEMAND IN PIPING

Winnipeg.

Current trade in wrought piping is naturally of a moderate nature at this season of the year due to the unfavorable weather conditions for products of this kind. However, with bright prospects for brisk building activity, an improved demand is generally looked for in pipe markets. Following are the unchanged quotations:

BLACK PIPE

F.O.B.	Winnipeg	Calgary, Edmonton, Lethbridge & Medicine Hat.	Saskatoon.	Regina.	Brandon.
LIST NO. 54.					
⅛	$ 6 25	$ 0 28	$ 0 20	$ 0 17	$ 0 11
¼	4 52	0 47	0 34	0 30	0 19
⅜	4 67	0 62	0 45	0 40	0 26
½	5 95	0 94	0 67	0 59	0 38
¾	7 20	1 25	0 90	0 79	0 51
1	10 04	1 85	1 34	1 17	0 75
1¼	13 60	2 51	1 80	1 57	1 00
1½	16 26	3 01	2 15	1 88	1 21
2	21 88	4 04	2 88	2 52	1 62
2½	34 61	6 40	4 60	4 02	2 68
3	45 26	8 38	6 03	5 28	3 39
3½	58 88	10 12	7 20	6 30	4 05
4	69 75	11 97	8 53	7 46	4 80
4½	81 22	13 91	10 04	8 75	5 62
5	94 73	16 30	11 60	10 15	6 52
6	122 86	21 10	15 00	13 14	8 44
7	181 18	26 14	18 62	16 28	10 46
8L	190 38	27 50	20 00	17 50	11 25
9	267 05	37 60	26 96	23 59	15 16
10L	248 00	35 20	25 60	22 40	14 40

GALVANIZED PIPE

⅛	$ 8 50	$ 0 28	$ 0 20	$ 0 17	$ 0 11
¼	7 04	0 47	0 34	0 30	0 19
⅜	7 09	0 62	0 45	0 40	0 26
½	7 89	0 94	0 67	0 59	0 38
¾	9 41	1 25	0 90	0 79	0 51
1	13 50	1 85	1 34	1 17	0 75
1¼	18 29	2 51	1 80	1 57	1 00
1½	21 87	3 01	2 15	1 88	1 21
2	29 43	4 04	2 88	2 52	1 62
2½	46 54	6 40	4 60	4 02	2 68
3	60 86	8 38	6 03	5 28	3 39
3½	77 65	10 12	7 20	6 30	4 05
4	92 00	11 97	8 53	7 46	4 80
4½	105 60	13 91	10 04	8 75	5 62
5	123 15	16 30	11 60	10 15	6 52
6	159 70	21 10	15 00	13 14	8 44
7	.....	26 14	18 62	16 28	10 45
8	.....	27 50	20 00	17 50	11 22

MODERATE TRADE IN ENAMELLED WARES

Winnipeg.

Quietness reigns in enamelled ware products, such as closets, lavatories, urinals, baths and sinks. Quotations on these various products are nominally unchanged, with distributors generally anticipating improved demands with the advent of the Spring and Summer seasons. The fact that extensive building programs are being outlined in many districts, naturally serves to reflect a brighter tone regarding future business.

REDUCTION NOTED IN RANGE BOILER PRICE

Winnipeg.

A slight revision has been made in the current prices on range boilers, this change being confined to the thirty-gallon standard size. This price is now reduced to $9.00. Quotations on other sizes generally remain at the following levels:

RANGE BOILERS

Size	Price each
30 gallon	9 00
35 gallon	13 25
40 gallon	16 25
52 gallon	23 45
66 gallon	33 15
82 gallon	40 60
100 gallon	62 50
120 gallon	75 00

QUIETNESS RECORDED IN SHEET MARKETS

Winnipeg.

Business is described as very quiet in sheets and plates, but a more optimistic tone is noted regarding future activities. The following unchanged prices prevail locally:

STEEL SHEETS, BLACK—	
10 gauge	5 70
12 gauge	5 70
14 gauge	5 80
16 gauge	5 90
18-20 gauge	6 30
22-24 gauge	6 35
26 gauge	6 40
28 gauge	6 65
IRON GALVANIZED—	
Premier; Apollo and "Fleur de Lis"	
10¾ oz. or 28 Eng.	8 20
28 Am. or 26 Eng.	7 80
26 Am. or 24 Eng.	7 20
24	7 05
22	7 05
18 and 20	6 90
16	6 75

OPTIMISTIC OUTLOOK FOR SHEET METAL TRADE

Winnipeg.

Although present trade in eavestrough, conductor pipe, corrugated sheets and similar products is of a restricted nature at this season, current developments lend encouragement to an optimistic outlook regarding increased future trade. An extensive building program has been prepared in many quarters, and activity in construction work generally is naturally expected to be reflected in the demand for products of this nature.

A VALVE for EVERY SERVICE

Naturally the Berliner People Chose JENKINS

Where Jenkins Valves are installed dependable and trouble-free service is assured.

It was but natural therefore that the Berliner Gramophone Co., should insist upon Jenkins Valves for their big new plant addition at St. Henri, Montreal.

Engineers or Plumbing & Heating Contractors will assure prestige to themselves and satisfaction to their clients by always installing genuine Jenkins Valves.

Catalog No. 8, describing the complete Jenkins line, free on request.

Write for it.

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Agencies in all the principal countries of the world

J. M. T. Plumbing Goods
MORRISON

Plumbing businesses only grow in one way: By keeping the old clients and gaining new ones. The most substantial growth is founded on satisfied clients. Everyone admits the truth of this.

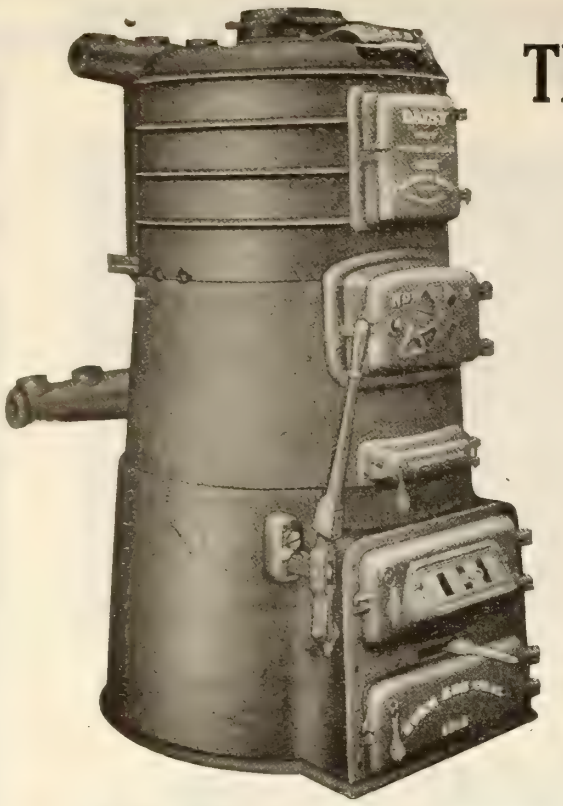
To consistently specify Morrison Plumbing Goods is the surest way of assuring satisfied clients and holding the trade and good-will of old customers whose commendation soon brings you the new ones.

We Stock—

Iron Pipe,
Lead Pipe.
Cast Iron Soil Pipe, and Fittings.
Brass Tube, ⅛ to 10-inch O.D.
Brass Pipe—Iron Pipe Sizes.
Copper Pipe—Iron Pipe Sizes.
Brass Rod—Round and Hexagon.
Copper Rod.
Sheet Brass.
Brass Wire.
Brass and Copper Pipe.
Iron Pipe Fittings.
Brass Pipe Fittings.
Pipe Fitters' Tools.
Stocks and Dies.
Pipe Wrenches.
Pipe Cutters.
Pipe Vises.
Etc., Etc.

James Morrison Brass Mfg. Co.

93-97 Adelaide St. West, Toronto



The Common-Sense Boilers

DAISY

Hot Water Boilers

Most of your customers can be relied on for common sense. You can be assured of interest and find it easy to put in Daisy Boilers when you show the fuel economy, easy of operation and perfect satisfaction.
If possible show your prospect a Daisy you have installed. No argument beats the Daisy in actual use and the invariable enthusiasm of its new owner.

There are over 60,000 Daisy Hot Water Boilers in use: "Nothing succeeds like success"; you can easily see there is good business in handling the "Daisy."

WARDEN KING, Limited, Montreal

Branch Office: 136 Simcoe St., Toronto

VULCAN

Pure Air Furnaces

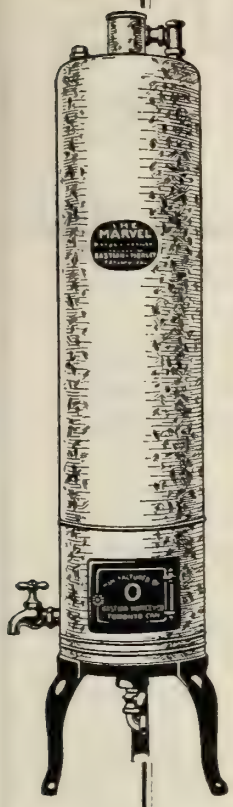
The greater radiating surface on the Vulcan makes them more effective. They are economical, simple and easy to operate, and very profitable for you to install. Built of heavy metal, they are very durable in use.

Vulcan Pure Air Furnaces are satisfactory in service, economy of fuel, comfort in the home and ease of operation. We can prove this; write and ask us to.

The Vulcan Co., Limited

London - Canada

Sell Boiler and Heater Combined



Sell a job you can install anywhere in quick time—a job that gives you a quick, clean generous profit—and no complaints. The

MARVEL
Gas Water Heater

is heater and storage tank in one compact unit. No lime or sediment-holding coils. No odors and no noise. Economical to use.

Comes complete, ready to install. Well advertised. Sold only through or by plumbers. Costs no more than old-style gas water heaters. Descriptive literature will convince you it's worth much more.

Write now for full information.

Bastian-Morley Limited

Makers of Royal "Automatic" Gas Water Heaters.

195 Victoria St., TORONTO

TEN THOUSAND "PUSSYFOOT" TANKS SOLD 1921
THREE MODELS

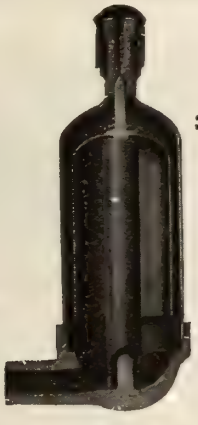
Quick as a Cat

Silent as a Pussy's Foot

Beauty, Style, Refinement combined with the "Pussyfoot" Valve simplicity, makes a Silent, Efficient, Durable Closet Tank.

All Jobbers

THE CANADA METAL CO., LIMITED
TORONTO



Gem Automatic Air Valves

This automatic air valve is made of the best brass obtainable and is equipped with high grade carbon. The mechanism is perfect, every valve being guaranteed by us.

Ask for a catalog of Steam Specialties, as we manufacture many articles of interest to Plumbers and Steam Fitters.

All goods conform with custom regulations. When in New York call at our office and warehouse, 234 Water St., and see our complete line.

The Beaton & Cadwell Mfg. Co.
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Eastern Agents:
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Bull Dog
Brand Seats & Tanks

Strongly made of superior materials, and thoroughly proof against warping, opening, etc. Investigate the Bull Dog line of products.

HOURD & CO., LIMITED
London, Canada.

Superior Plain

Closet Bend

The advantages of this fitting appeal to every thinking engineer. It is absolutely tight, no more floor seepage, permanent and at the same time easily removable for repair or replacement of bowl, widest range of adjustable flange and fits any make of closet. Made in 18 in. lengths, plain or tapped on both sides. Ask your jobber for the K.T. Closet Bend, Plain or Tapped.

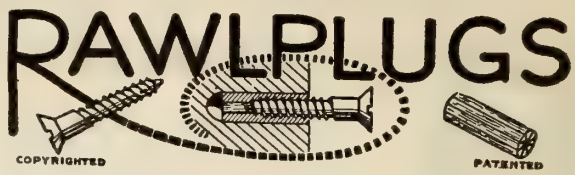
THE TRADE
Is Respectfully Cautioned to specify

RIVETED RANGE BOILERS

Made by the old reliable

TORONTO HARDWARE MFG., CO., LIMITED

RAWLPLUGS



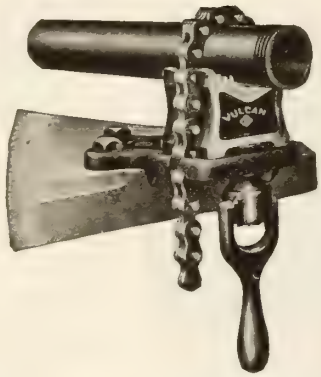
Enable Ordinary Screws to Hold In Any Material

The Rawlplug is a manufactured tube of fibre strands so cemented that when once in position it can never crumble or pulp and is impervious to decay through moisture or otherwise.

The Rawlplug expands as the screw is turned home. This results in a perfect grip by the Rawlplug in any material as its friction extends throughout its entire length and the Rawlplug thus forms an integral part of the surrounding material. The screw cuts a perfect thread inside the plug.

INVENTIONS LIMITED
Sole Agents for The Rawlplug Co. of Canada, 128 Bleury St., Montreal, Que.

Agents for U.S.A., The Rawlplug Co., 461 8th Ave., New York.



WILLIAMS' "VULCAN"
Drop-Forged
CHAIN PIPE VISE

The only Pipe Vise made entirely of Wrought Steel

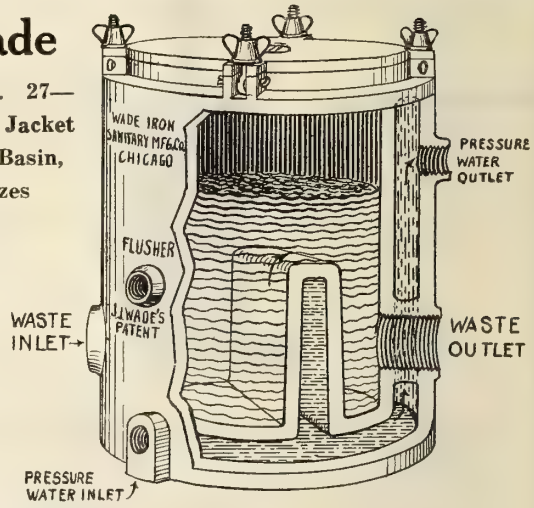
Compact, light, rapid in action and easily attached to bench or post. The strongest and most efficient pipe vise on the market. 3 sizes, for ⅛ to 8-inch pipe.

Ask for Booklet

J. H. WILLIAMS & CO., Limited
"The Drop-Forging People"
77 Thorold Road, St. Catharines, Ont.

Wade

B. Fig. 27—Water Jacket Grease Basin, Four Sizes



Water Jacket Grease Basin

Water Jacket Grease Trap pays for itself and installations in hotels and restaurants in short time. Grease is skimmed off and soap is made. Stops all clogging at waste pipes.

A fixture that you can guarantee to meet all sanitary requirements.

Write for Catalog "B"

WADE IRON SANITARY MFG. CO.
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Allpriser—
Your Price Clerk

Write for further information

K. B. ALLISON

4 Irwin Ave. - Toronto, Ont.

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Advertising should be considered as well as the commodities in which merchants deal.

By choosing only those publications whose circulation is accurately measured, you not only practise economy in your advertising, but are assured that your money is buying a definite quantity of circulation.

The Sanitary Engineer circulation is measured by the Audit Bureau of Circulations. Advertising placed in its columns is an economical investment.

Help Your Clients Save Coal

The West Furnace Carburetor or Smoke Abater is a simple device to burn the gas from coal and effect a great saving of fuel. With this device the gas that usually goes up the chimney is supplied with air at the right temperature to make the gas burn.

This economical device is **guaranteed** to save 10 to 25 per cent. of fuel bills.

This device can be installed for $30.00, giving a 75% profit to you.

The Canadian Combustion Co., Limited

Phone M. 6398

TORONTO - - - CANADA

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Our new HOME STUDY course in BUSINESS ADMINISTRATION is now ready for the trade. It teaches you the most modern methods of Business.
Learn to extend your Markets; enlarge your Business; Learn to adjust all the business combinations to the limit. We build on top of your present Ability and give you a business training equal to the best.
We teach you in your own home or office, Clear, Personal, Direct. An Hour a day will prepare you into a highly specialized Executive. Make ready for the next great prosperous Building wave.

Full information free.

COURSES IN MODERN BUSINESS ADMINISTRATION
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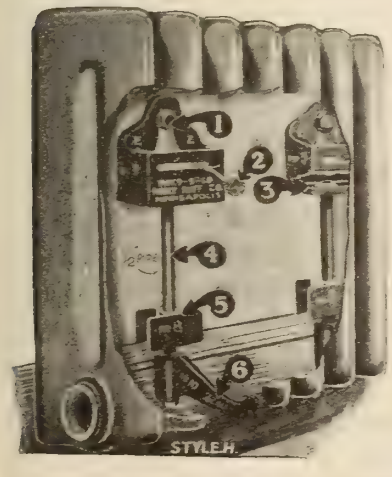

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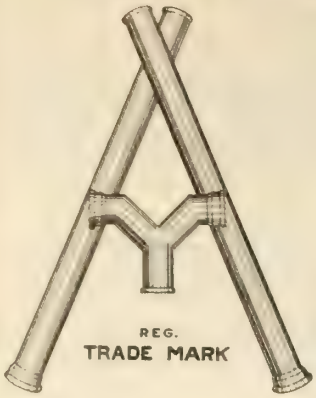

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Self-scouring, Non-syphoning, Adjustable. Two sizes, 1¼ in. x 1½ in. The trap you have used for years.

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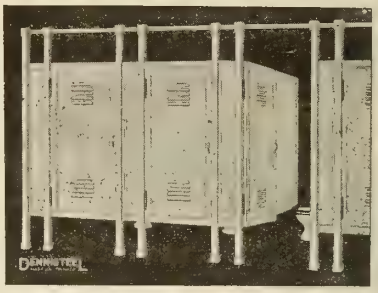

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A message to the whole plumbing trade of Canada through Sanitary Engineer is productive, profitable and reliable "business insurance" for the future.

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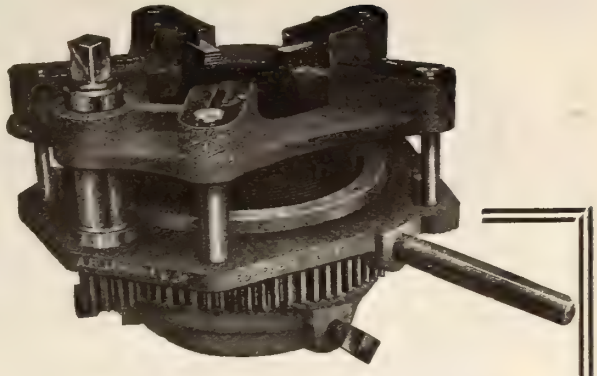

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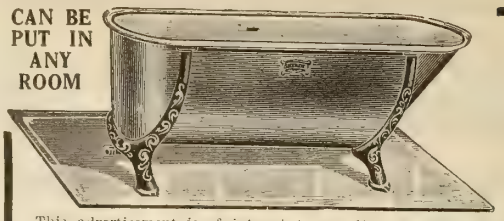

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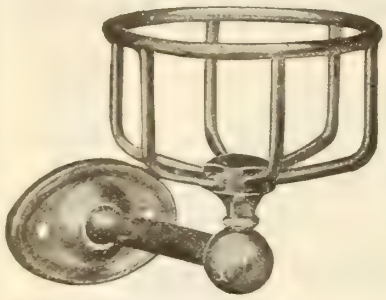

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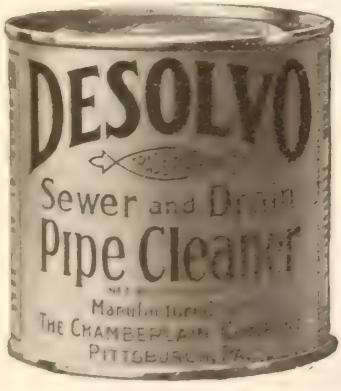

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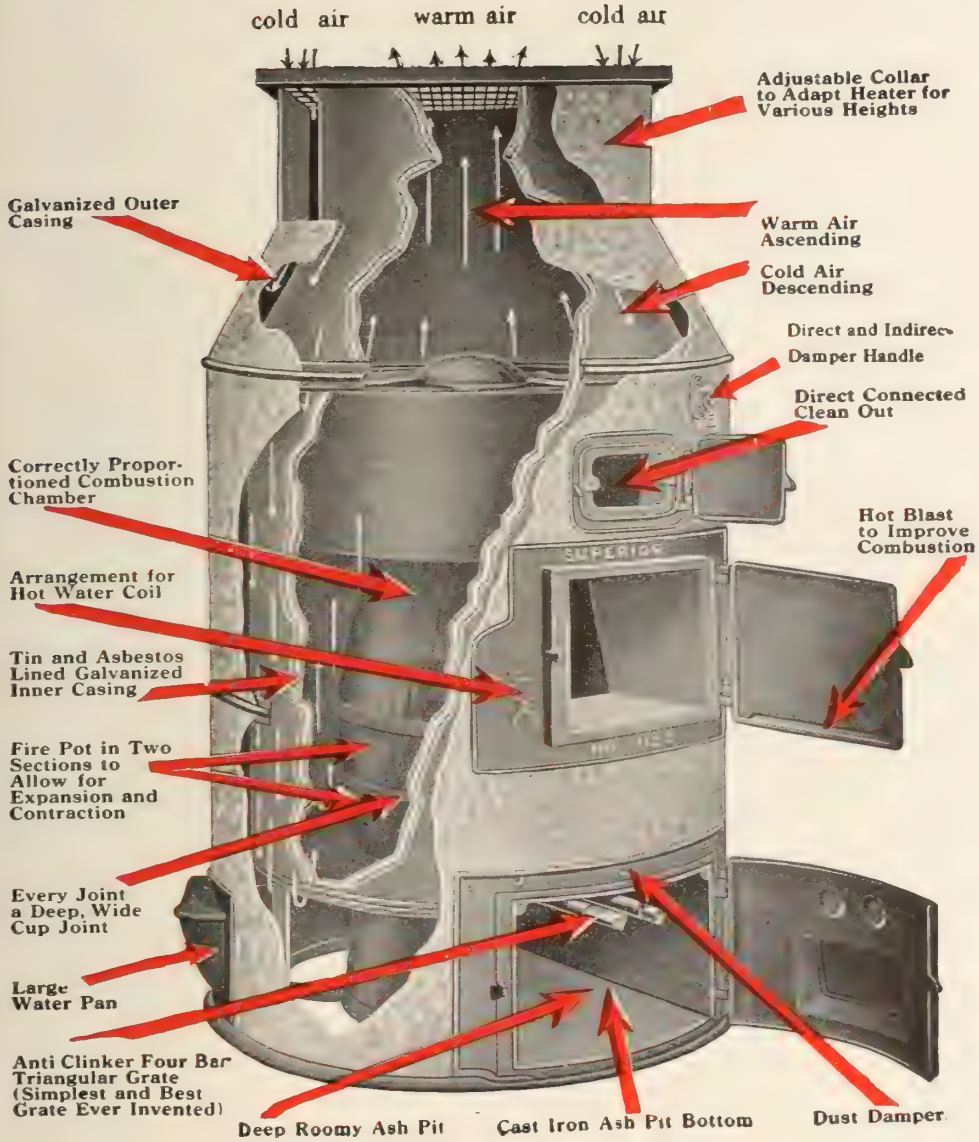
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Direct and Indirect Damper Handle
Direct Connected Clean Out
Correctly Proportioned Combustion Chamber
Hot Blast to Improve Combustion
Arrangement for Hot Water Coil
Tin and Asbestos Lined Galvanized Inner Casing
Fire Pot in Two Sections to Allow for Expansion and Contraction
Every Joint a Deep, Wide Cup Joint
Large Water Pan
Anti Clinker Four Bar Triangular Grate (Simplest and Best Grate Ever Invented)
Deep Roomy Ash Pit
Cast Iron Ash Pit Bottom
Dust Damper

To the Dealer:—

The Pilot Superior is the leading Pipeless furnace on the market. It was conceived before other pipeless furnaces were made in Canada and our pioneer experience in this field enables us to place in the hands of the trade the most efficient and economical heating apparatus built. Note the red arrows shown in the illustration which describe the features of this furnace.

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The Hall Zryd Foundry Company, Limited

Manufacturer of Pilot Stoves, Ranges and Furnaces

Western Branch : Post Office Box 687, Winnipeg, Manitoba

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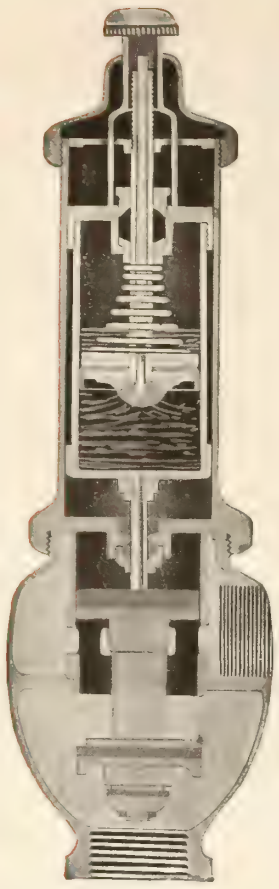


Sectional View
of
PerfectO Flush Valve

showing the oil-chamber with the working parts completely cut off from contact with the water. The flow of water may be easily and quickly regulated to suit varying requirements.

Write for Catalogue

Why an Oil-Controlled Valve?

WHAT IS the logical medium for regulating a flush valve? Water? Water often contains impurities that obstruct the by-pass and interfere with the smooth working of the valve.

Oil! There is the answer. PerfectO Flush Valves are Oil-Regulated. Water can't cause any trouble—because no water can get into the by-pass—nothing but high-grade mineral oil.

This oil is contained in a sealed, cast-brass chamber. It cannot escape or evaporate and never needs replacing. Its density is unchanging—hence the action of the valve, once it is adjusted, does not vary. PerfectO Flush Valves are Oil-Controlled because an oil-controlled valve gives better service for a longer time. And that's why there is genuine satisfaction ahead when you install PerfectO Oil-Regulated Flush Valves.

GALT BRASS CO., LIMITED
GALT, CANADA

PERFECTO
OIL REGULATED
FLUSH VALVE

Sanitary Engineer
Plumber and Steamfitter of Canada
Vol. XVI. PUBLICATION OFFICE, TORONTO, MARCH 15, 1922 No. 6

A 415
China Side Lever Handle
Quick Opening, Compression
Basin Cock

The Pinnacle of Convenience

OUR "Emco" side handle basin cock is more than a mere tap.

It is a beautiful fixture—an embellishment to any bathroom. Not only is it attractive but it possesses two necessary qualifications—absolute shut off and durability.

This "Emco" A415 Quick Opening basin cock works on the compression principle—no drip, no waste.

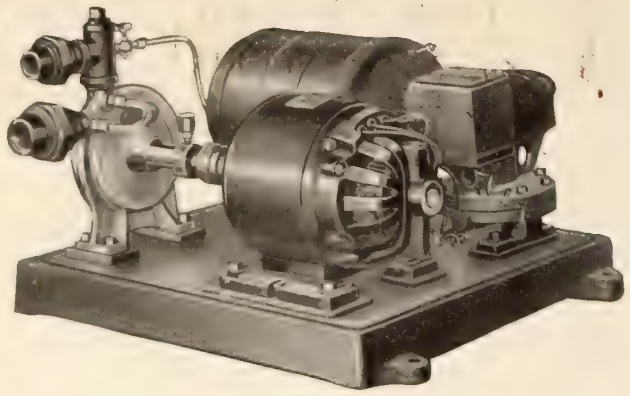
"Emco" products are sold by the leading jobbers everywhere.

"Saves the water as it ought to."

Empire Brass Manufacturing Company

Limited

London and Toronto, Canada



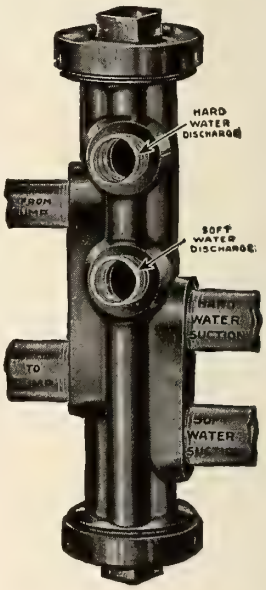
NEW WESTCO TANKLESS
(AUTOMATIC ELECTRIC)
WATER SYSTEM

We Have Had Our Troubles

With these two, used together, you can pump both hard and soft water AUTOMATICALLY WITHOUT ANY STORAGE TANKS AT ALL.

You know that some of the early Westco Systems gave trouble. We admit it. They were made for us by another company. The materials used were not right. The workmanship was poor. The design was faulty. Fourteen months ago we started our own Canadian factory. During that year we have permanently remedied every troublesome equipment brought to our attention. OUR NEW DESIGN has eliminated every source of possible trouble. We now make all parts (except the motor) in our own factory from the finest materials, with the most expert labor, under intelligent, interested supervision. We **know** these Systems are right before we send them out. When properly installed they do not require service. These facts and the following description tell why.

THE "DUAL"
(ALL BRONZE)
AUTOMATIC VALVE



Specifications of Our New Tankless Automatic Systems

All bronze pump, with S.K.F. ball thrust bearing. Designed to operate at standard motor speeds, which permits direct coupling to the motor shaft. In capacities from 180 to 1,000 gallons per hour. "Wagner" electric repulsion induction type motor. Westco-Made double-pole pressure governor switch. Dart unions on suction and discharge. Lunkenheimer brass swing check valve and strainer for intake. Welded steel compression chamber and one-piece cast iron base. Shipping weight of 300 gal. size, crated, 140 lbs.

No Belts—No Idlers—No Gears—No Valves—No Dead Centre—ONLY ONE MOVING PART.

These Systems Are Guaranteed

You who purchased earlier equipments know that we more than live up to our guarantee. Put in the **NEW WESTCO** on your next job. It will delight your customer. It will satisfy you. Write NOW for our literature and latest trade prices.

WESTCO PUMPS, LIMITED

Office and Factory :

QUEEN AND ABELL STS. - TORONTO, ONT.

The "A-1" Closet Combination

This closet combination might be described as the embodiment of dignified sanitary simplicity. The closet bowl is our No. 105 A-1 Syphon Action washdown—a bowl of substantial construction and weight, produced in Canadian solid vitreous ware, of pleasing design and with strong positive syphonic action.

The tank is our No. 503 Bellemeade Junior, also of Canadian solid vitreous ware, a tank which is steadily appealing to discriminating buyers of best sanitary fixtures.

Designed on simple, pleasing and dignified lines, and with the inimitable white lustrous surface of Canadian solid vitreous ware, the A-1 combination will furnish essential freshness, cleanliness and sanitation to any toilet-room.

Canadian solid vitreous ware is vitreous through and through—the glaze and body are burned together, so that chipping, cracking, peeling, discoloration or other developments of unsightliness are impossible, and the beautiful white glossy surface is so easily kept clean that the whole outfit should retain its original attractiveness after many years of usefulness.

The reasonable price of this outfit is but the final argument in its favor. We quote on the outfit complete as illustrated, including seat and floor flange.

CANADIAN POTTERIES
LIMITED

SAINT JOHNS
QUEBEC

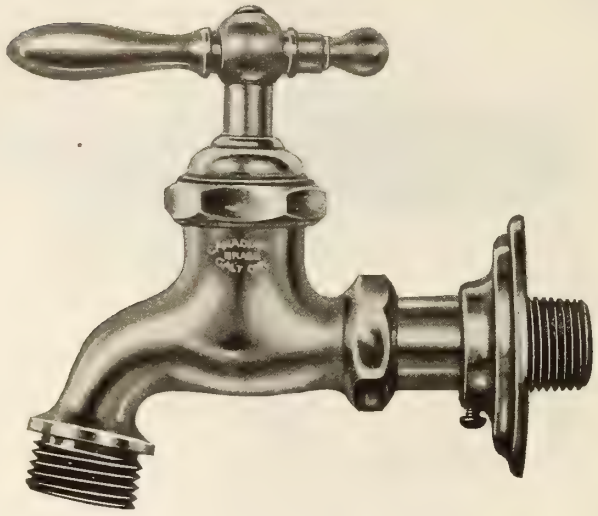
CANADIAN BRASS CO. LIMITED QUALITY SERVICE

A P P L E S

ARE BEST JUDGED BY THEIR TASTE

A BEAUTIFUL SKIN

DOESN'T ALWAYS COVER GOOD FRUIT



So it is with Water Taps. A first-class article must of course be highly finished with A-1 Nickel, but the important part is the mechanism.

Most Compression Work on the market to-day is of good appearance, but a large percentage does not give satisfactory service. A Tap may be defective even though it does not leak when installed. Sometimes poor metal or a thread short on the stem, but however small the defect, it will show itself after a few months' wear.

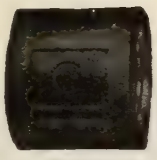
You see an illustration on this page, don't you? At first glance it looks just the same as dozens of other illustrations you have seen, doesn't it? Examine a little closer and you will find a Set Screw Flange Hose Sink Bibb of neat design and well proportioned which has a Square Threaded Stem, Strong Washer Encasements and Good Packing. Built for Service.

Our Galt and Toronto plants await your further commands.

CANADIAN BRASS CO. LIMITED QUALITY SERVICE

CRANE FITTINGS

MALLEABLE ——— CAST IRON



Make Tight Joints

Our patterns for malleable and cast iron fittings include all the necessary sizes and shapes to meet all requirements.

CRANE
LIMITED

Manufacturers of Valves, Fittings and Piping Equipment and Distributors of Pipe, Plumbing and Heating Supplies.

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Sales Offices:
QUEBEC, SHERBROOKE, ST. JOHN, VICTORIA.

CRANE
LIMITED
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1280 ST PATRICK STREET
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CRANE-BENNETT
Limited
Head Office and Warehouse:
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Sales Offices:
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14

What these

"Standard"
PLUMBING FIXTURES
Is Your Sink 36 Inches High?
The Centre of Home Health
A Comfort Every Home Should Have
Make Winter Bathing a Pleasure

THEY mean the education of the public to a realization of the comfort and value of modern plumbing fixtures.

They mean the opening up of vast untouched markets by the appeal which they carry to every man, woman and child in Canada.

mean to you

THEY mean the arousing of public opinion to the point of creating a desire to actually *see* these fixtures.
They mean, by accomplishing this, increased business for you.

LINK up with the "Standard" idea by putting your show room in order. Make it an attractive place—a place of beauty—that by its very attractiveness, will encourage people to come in and look things over.

BUT don't be content with this. Get out on the highways and byways in your district and sell the idea of modern plumbing fixtures personally.

CO-OPERATE with us in this way by boosting for all you're worth and the end of the year will close with a big balance in the books—on the right side.

OVER a million people in Canada read the advertising we are running every month to promote the sale of modern plumbing fixtures.

Read what this means to you on the opposite page.

Standard Sanitary Mfg. Co.
Limited

General Office and Factory: Royce and Lansdowne Aves., Toronto, Ont.

Toronto Store:
55-59 Richmond Street East
Calgary:
325 Eighth Avenue West

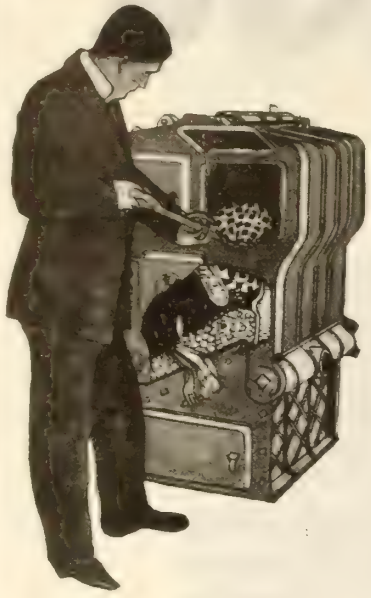
Winnipeg Showrooms:
76 Lombard Street
Hamilton Store:
26-28 Jackson Street West

Montreal:
New Birks Bldg.
Vancouver
860 Cambie Street

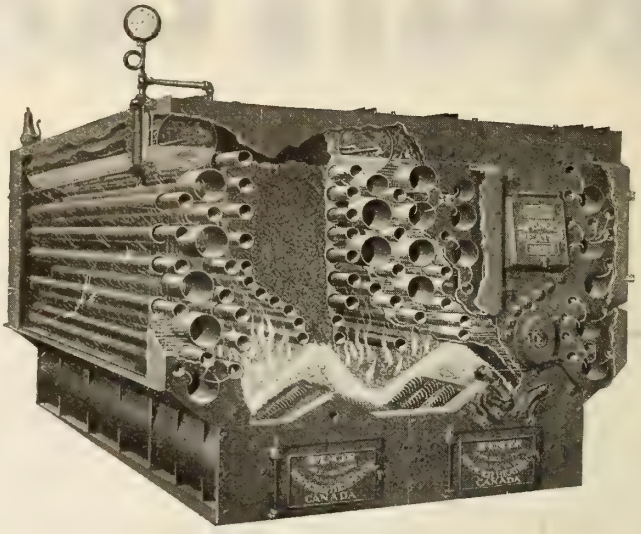
"MADE IN CANADA"

SPENCER MAGAZINE FEED BOILERS

BURN LOW PRICED FUEL



MADE IN CANADA



SPENCER

Heaters That Burn Low Priced Fuel

and so save $3 to $5 a ton on coal beside being easy to run and requiring little attention.

The Spencer will burn No. 1 Buckwheat coal — a kind that is always available and usually can be only utilized by factory boilers with special equipment.

The Spencer magazine holds a 24-hour supply, feeds uniformly, only as fast as coal is consumed, giving exact control. They have maintained temperatures 48 hours in the coldest weather without attention. We offer many sizes and a wide variety.

Send us your address—we have a proposition of interest and value to you.

Spencer Heater Company of Canada, Limited

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WINNIPEG, MAN.
185 Portage Ave., E.

PLANT
Penetang, Ont.

MONTREAL, QUE.
71 St. James Street

SANITARY ENGINEER
PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907 PUBLISHED TWICE MONTHLY

Vol. XVI. PUBLICATION OFFICE: TORONTO, MARCH 15, 1922 No. 6

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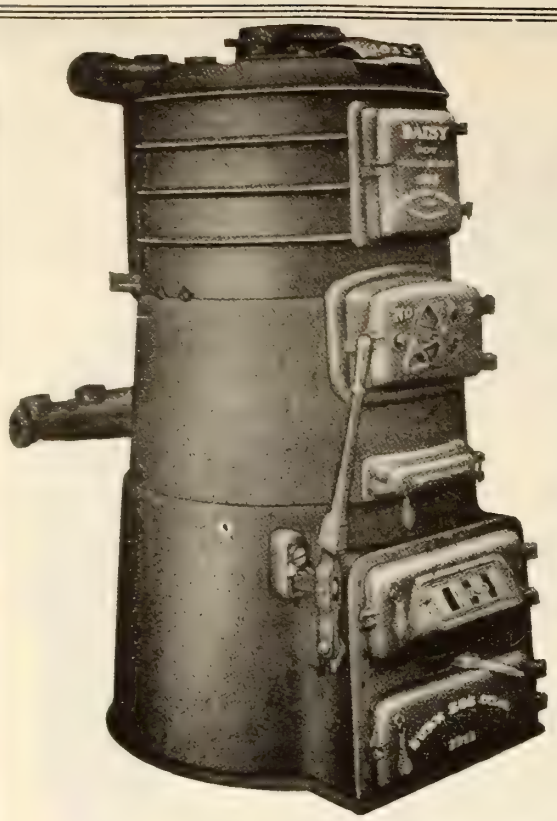


It's Joy to Own a Daisy

That's Why You'll Find Them Easy to Sell

DAISY

Hot Water Boilers

The Daisy is easy to understand, easy to operate, and easy to get good results with.

Daisy Boilers will run with surprisingly little attention. They burn easily and steadily. The water is quickly heated and easily kept hot with a minimum consumption of fuel.

The best help you can have in selling a Daisy Boiler is to send your prospect to interview your last customer—they're always satisfied—delighted—with the Daisy.

WARDEN KING, Limited, Montreal

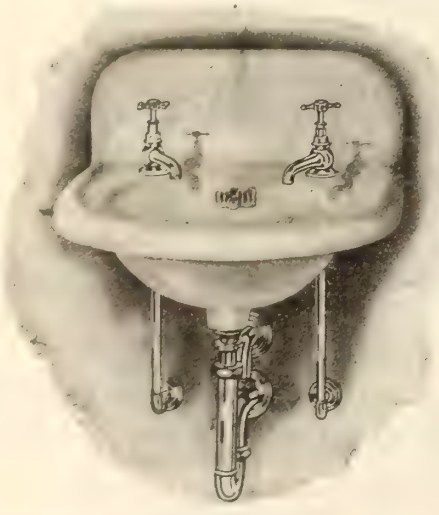
Branch Office: 136 Simcoe St., Toronto

BEAVER BRAND

Porcelain Enamel Ware

The beauty and attractiveness that lead to the Beaver Brand popularity are attained by methods of manufacture that add materially at the same time to the durability and finish of this handsome ware.

"Shamrock" Porcelain Enameled Bath



One Piece Porcelain Enamel Lavatory

The "Beaver" Porcelain Enameled, One-Piece Lavatory is illustrated to the left. It has D-shaped basin, patent overflow and shell soap dish on concealed brackets. Complete with N.P. overflow strainer, chain stay, plug and stopper. "Beaver" Porcelain Enameled Bath, with 1½ inch roll rim, for Fuller double bath cock, connected waste and overflow, painted exterior. We will be glad to supply dimensions and prices on application.

Amherst Foundry Co., Limited

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Agents:

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197 Princess St., Winnipeg

Established 1907

Circulates Throughout Canada

Sanitary Engineer
Plumber and Steamfitter of Canada

Published First and Fifteenth of Month

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Manufacturers Condemn Wholesalers Who Rob Plumbers of Legitimate Trade

New Phases of Question of Showrooms for Plumbers Outlined in Opinions of Two Manufacturers of Plumbing and Heating Goods —Quebec Master Plumber Answers Previous Replies of Manufacturers and Wholesalers

FURTHER enlightenment on the question of showrooms for plumbers and steps which should be taken to insure adequate protection for all concerned, are outlined herewith. Various opinions on this subject have been given in several recent issues of Sanitary Engineer, and any further communications on the subject will be appreciated by the Editor. In the following, two manufacturers of plumbing and heating goods outline their views on this subject and the master plumber of Quebec Province who brought up the subject answers some of the recent replies of other manufacturers and wholesalers:

An Ontario manufacturer of plumbing fixtures states:

"It is unfortunate that a concern of plumbing contractors should feel or be made to feel that their showroom is not a profitable investment.

"The sanitary engineer is a merchant. He sells and installs plumbing equipment. This is the regular channel recognized by manufacturers and jobbers for the proper distribution of such goods. Being a merchant, is it not reasonable to suppose that his merchandise should be displayed? Speaking generally we believe it is.

Some Local Condition

"The sanitary engineer in Quebec, who after many years of successful showroom operating, finds it necessary to discontinue that department of his business, must, in our opinion, be subject to some local condition that would not apply to the trade as a whole. We would not be in a position to discuss this particular case, because we do not know those local conditions. Our suggestion to you is that you write to about six prominent sanitary engineers in that same locality, and get an expression from them. If this one concern is seriously affected by conditions in their vicinity, the same thing would probably apply to others in the same business. The reports thus obtained would be of more interest than any comment made by someone not thoroughly in touch with conditions in that particular locality.

"We do know that as far as the trade as a whole is concerned, jobbers recognize that the contracting sanitary engineer must have profit on the goods he installs, and the manufacturers of plumbing equipment are of this same opinion."

A manufacturer in the Maritime Provinces states:

"In reference to an article entitled "Another Phase of the Showroom Question," which appeared in a recent issue of your journal, you ask us to express to you our views, as to whether or not it is a fair proposition to the plumber for wholesalers to sell direct to the consumers at prices about the same as those which the plumber has to pay.

Not Just Treatment

"We certainly do not think that this is a fair or just way to treat the plumbers and we can assure you that in our business we are very careful to look after the interests of the plumbers in this respect. We, of course, are manufacturers and sell to the wholesalers and we do not know to what extent some of them may sell goods to the consumers direct. We did not think, however, that there was much of this done among the wholesalers in enamel goods. It is certainly impossible for a plumber to do a successful business if the wholesalers are supplying those who would be his customers, with goods at prices about the same as they would charge to the plumber."

In replying to the opinions expressed in recent articles on this subject, the master plumber of Quebec Province, who says he is forced to close his showroom due to lack of protection on prices from wholesalers, has made the following statement to Sanitary Engineer:

"In your February 15th issue, page four, I read very carefully some expression of opinion on the subject of "Should Plumbers Run Showrooms," and I noticed that a Western Ontario manufacturer said I overlooked a very important fact, that 'The price from the wholesaler to the consumer covers the material only, and that the consumer would be forced to secure an installation price from the master plumber.'

Would Have to Close Shop Too

"My reply is, that I did not overlook this; I knew it, you know it and everybody knows that if the plumber could not at least secure the installation of plumbing goods sold to consumers by the jobbers, he would not only be compelled to close his showroom but also his shop.

"He also admits that in certain rare cases the material purchased is of such a nature that it could be installed by the consumer. Yes, but not in rare cases, as he says, but in many cases when the jobbers or manufacturers furnish the consumers with full plans and specifications and give him all the necessary informations so as to enable him to hire a workman plumber and do the job himself. Of course this mostly applies to heating, not much to plumbing, however, it affects the master plumber as well.

"He also adds: 'More aggressive merchandising policies supplemented by a well appointed showroom are the contracting plumbers' best guarantee and assurance that he will receive the preference over quotations for material only furnished by wholesale distributors.'

"This would be all right if the wholesalers would sell at retail prices to consumers, no matter if they would not give any commission to the plumber, and the plumber who has a showroom could compete with him; but when the wholesaler sells to consumers at the same price he sells to the master-plumber, what's the use for us to keep a showroom?

"The statement of a Central Ontario manufacturer is correct, in my humble opinion; this is the only way to make the majority of plumbers prosperous, and I regret to say that although it is the only good theory, it is not much practised.

(Continued on page 16)

Questions and Answers Regarding Plumbing and Heating Practice

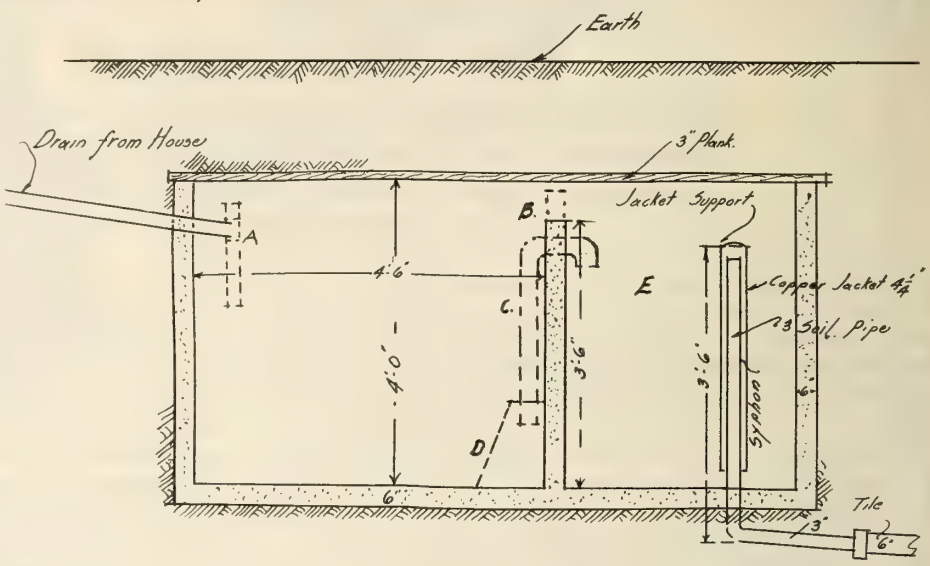
WHAT BREAKS SYPHONING?

Editor, Sanitary Engineer

Please tell me if Septic Tank "Plan No. 1 and 2" would work all right in a sandy soil, for a cottage of six persons. If not what shall I do?

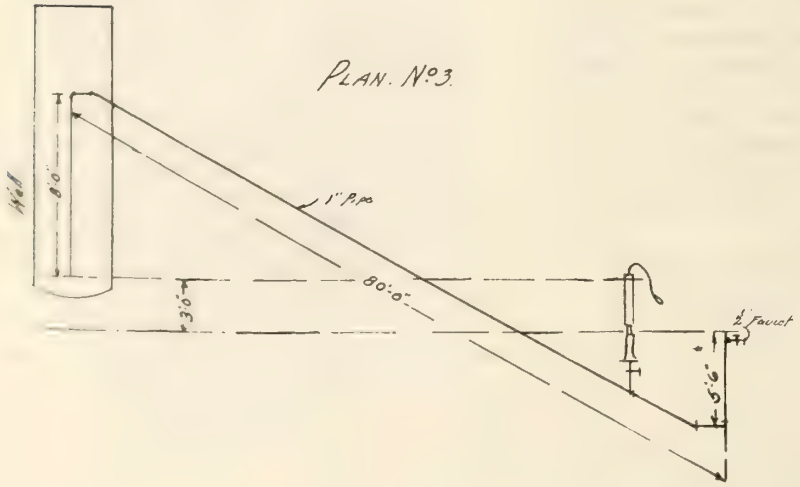
In plan No. 3, I am trying to supply another cottage with water from a well by means of syphoning. In the spring when water in the well is above the top of the pipe it seems to work all right, but when the water is getting lower, say about 3 ft from bottom end of the pipe, the syphoning stops. I start it again with a pump and valve, and it works for four or five days and stops again. Will you tell me what you think is the cause of breaking syphon?

PLAN No 1.



PLAN #2

PLAN. No 3.



Answer:—The septic tank illustrated by your drawings should give satisfactory service if a few minor changes were made in the design.

First: We might suggest that the drain from the house be fitted with a tee connection at "A," as we have marked on the plan. The top of the tee should be left open, so that the drain pipe may be relieved of the air which will come down this pipe ahead of the drainage. The lower opening of the tee should extend down to some depth in the tank, so that the scum, or "mat" will not be broken by the incoming drainage.

The bridge wall should be continued up at "B" to within about 4" of the cover.

A pipe with elbows "C" should be set so that the effluent entering the "dosing chamber" may be taken from well down in the reducing tank. A wire screen, as at "D" should be placed in such a way as will prevent solid matter from entering the pipe "C".

If there is an intercepting trap set in the drain from the house, it will be necessary to provide a fresh air inlet to the dosing chamber, otherwise the syphon will not work.

The tank is something larger than is necessary. The depth of the tank could be made 3 ft. 6 in. and 4 ft. 6 in.

This tank will require about 260 lineal feet of porous field tiles, as laterals, set about 18 in. from the surface of the earth.

Re Well Syphon

The conditions here point to the trouble coming by reason of air entering the syphon. It may be that the water level in the well becomes at times low enough to clear the bottom of the

inlet pipe, or it may be that air leaks into the system because of faulty joints.

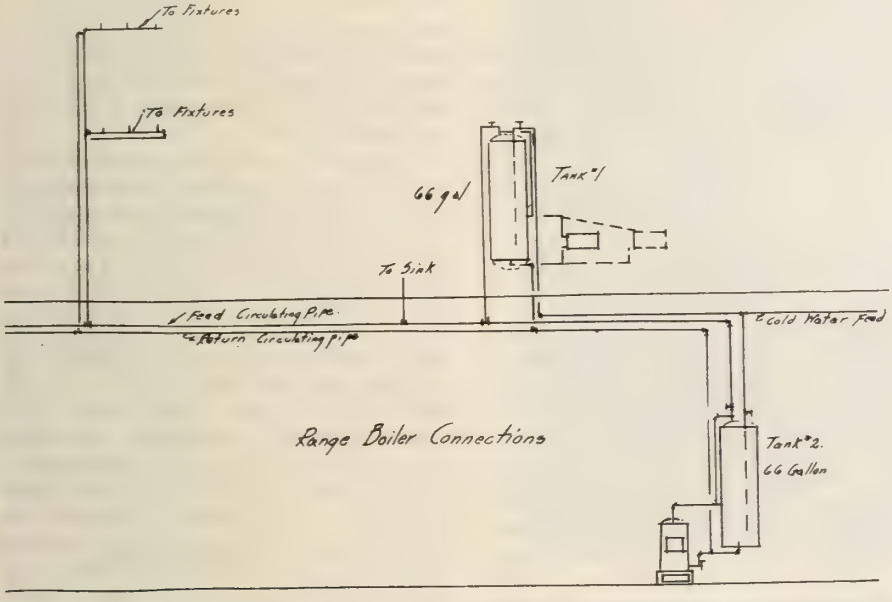
If the cause lies in the former reason, the only way to offset this trouble is to provide some means of sealing the inlet when the water drops below a certain level. This might be conveniently arranged for with a float valve.

If the trouble is due to leaky joints these joints should be made tight. It might be well to examine the valve chamber of the pump so that you might be sure that there is no leakage here.

RANGE BOILER CONNECTIONS

We are in receipt of the accompanying sketch with the request that we pass some comment on the arrangement illustrated thereon.

First: We do not think that it is necessary to connect both the side and top



outlets of each boiler to their separate tanks. We believe that the purpose might be better served by making a top connection for the higher tank and a side connection for the lower.

Second: It would be a better arrangement than is shown, if the feed circulation pipe could be run above the upper tank.

REFERENDUM FOR PUBLIC WORKS IMPROVEMENT

Montreal.—Failing to obtain the consent of the Quebec Legislature to raise money by loans without the approval of the property owners in Montreal, the city authorities, it is learned, will shortly submit to the electors a list of public works on which it is proposed to expend $3,000,000 this season. The stand taken by the legislature is that the realty electors of Montreal are the best judges as to whether public works of the kind described should be carried out or not. The administrators of the City, then, have no alterative but to submit to the question of the proposed expenditure to a referendum vote. The project will be fully studied within the next week or so and it is thought that all details will be completed for taking the vote next month.

While it is admitted that it may be no easy task to submit lists of public works that would win the support of all sections of Montreal, and while there may be a disposition on the part of some proprietors to vote only for such improvements as would benefit the locality in which they reside, it is thought that a well selected list of public works, showing general advantages for the city in general should have a good chance of getting the support of the majority.

The suggested list of improvements includes a trunk sewer at the North end of the city at a cost of $1,000,000; Park Terminal sewer, $340,000; Cote des Neiges sewer $200,000; Ville Emard sewar $300,000; these apart from other improvements in connection with subways and three new incinerators.

SEWERAGE SYSTEM PLANNED FOR SWANSEA

Swansea.—York township's plans for installing a complete sewerage system for the thickly populated areas were outlined at a meeting here by Township Engineer R. O. Wynne-Roberts. If the Legislature passes the required legislation work on the new sewerage system will likely be commenced this summer.

The inability of Toronto to look after township sewerage forced York to prepare a comprehensive scheme of its own, Mr. Wynne-Roberts stated. The plans called for a system constructed on such a basis that more units could be added as the population increased.

To look after Swansea and Runnymede a separate system would be built if the residents voted for it, he stated. The estimated cost for the two districts on the present assessment was $121,000 a year for 30 years.

LONG BRANCH PEOPLE WANT WATER SYSTEM

Long Branch.—A large deputation from this district will present a petition signed by practically all the residents, urging Etobicoke Council to create a new water area at Long Branch, and proceed immediately with the installation of a water system. The new area is practically the same as the one thrown out by the Ontario Railway and Municipal Board, with the exception that Eastwood and O'Connor subdivisions have been left out.

It is practically certain that the Township Council will accede immediately to the request of the ratepayers and proceed at once to draw up plans for the system. Water will likely be obtained from New Toronto as the Railway Board announced some time ago that it would not sanction the construction of another intake plant in this section.

LETTER BOX

HUMIDIFIERS

J. S. Mitchell & Company, Limited, Sherbrooke, P. Q.—There is a firm in Toronto who manufacture moisteners to hang on the side of a radiator. Will you please furnish us with their name and address.

Answer—These humidifiers can be procured from G. Ormsby Co., 175 Adelaide Street West, Toronto.

NON-CORROSIVE FLUX

D. H. Jackson, Chesterville, Ontario—Will you please advise where I can secure non-corrosive flux for soldering tinware.

Answer: We would refer you to the following: Canada Metal Company, Fraser Avenue, Toronto, Ont.; The Chicago Solder Company, Chicago.

SHEET BRASS

H. F. Prelipp, 316 King Street West, Hamilton—Please advise where I could obtain a sheet of hard brass, 27 in. x 4 ft. 6 in.

Answer—This is a special size and the distributors of sheet brass do not usually carry this product in larger sizes than 24 in. x 48 in. The fact that you want 27 in. wide would necessitate special rolling by the mills. We would refer you to the Brown Rolling Mills, New Toronto.

"DESOLVO"

Messrs. Rice Lewis & Sons, Toronto—Could you give us the name of the manufacturers of "Desolvo"?

Answer—The Chamberlain Desolvo Co., 109 Church Street, Toronto.

CLOSET SEAT HINGES

Hurtubise Ltd., Montreal—Will you kindly give us the names of some manufacturers of closet seat hinges.

Answer—The Canadian Brass Company, Galt, Ont.; The Stratford Brass Company, Stratford, Ont.

TILE PIPE

W. D. Edge, Ltd., Toronto—Could you kindly give us the name of the firm in St. John's, Que., who manufacture tile pipe?

Answer—No doubt you have in mind the Dominion Corrugated Steel Pipe Company, St. John's, Que.

HUMIDIFIERS

Messrs. Hope & Son, Sanitary Engineers, Perth, Ontario—Will you please advise the name of the firm where we may secure the small type of "Humidifier"?

Answer—There can be procured from C. Ormsby Company, 175 Adelaide treet, W. Toronto.

Heating and Ventilating

An Interesting Heating and Ventilating Plant

Our Readers Are Taken Into the Basement and Inner Workings of the Heating and Ventilating Equipment of the Large New King Edward Hotel, Toronto—How House Service Water is Supplied in Adequate Quantity

By T. H. FENNER

THE CITY of Toronto has a habit of being proud of its features, and of itself as a whole. When hotels are mentioned in Toronto the King Edward is naturally thought of as being the biggest thing of its line in the city, and its new eighteen-story building is a prominent feature of the landscape, or rather skyscape, for visitors entering Toronto by boat.

A hotel like this, which contains within its walls between guests and staff, enough people to make a little country town, has to be able to attend to their needs and fancies in a pretty wholesale way, and its services must never be allowed to slack off, on any excuse whatever. It must be lighted, heated, ventilated, and cooled, every minute of every hour of every day in the year.

A factory can be closed down at night, and at week ends, and any needed repairs or alterations carried out with some reasonable allowance of time. A hotel can never close down for a minute. The demand therefore on the machinery and staff that are responsible for its upkeep, is a never ceasing one.

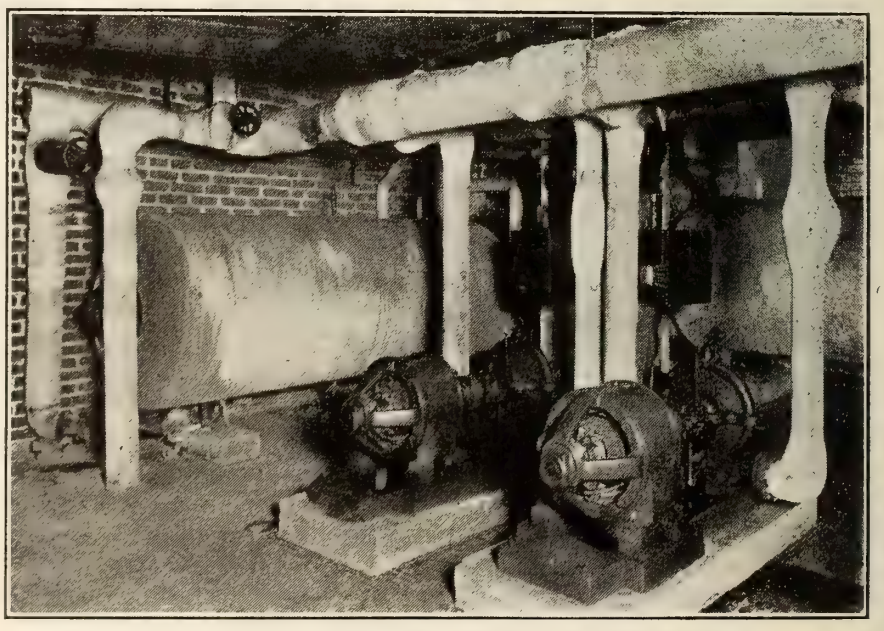
Day in and day out, year to year, the ever-ready current must be on the wire to flash into light when the impatient guest turns a switch, the water must be hot in the tap when he turns on his bath, the ice must be ready to cool off his drinking water, the elevator must be running to take him upstairs or down.

In addition to these things which are apparent to the sight and touch, there are many others which are necessary to his comfort, but with which he never comes in contact. His room is cleaned and swept by the same willing current which lights his lamp, and operates his telephone. His food is kept fresh and sweet in refrigerated store rooms, his ice cream is frozen by brine from the same refrigerating machines, and the ice for his ice water is another product of the plant. There are the freight elevators which bring up his baggage, the existence of which he is probably not aware, but they also are driven by the current which comes from the lowest depths of the building. The guest takes all these things as a matter of course, and it is safe to say that perhaps not one half of one per cent. of them ever give a single thought to the means by which all these things are provided to their hand.

The Hidden Power

Down below the level of the street, part of it even forty-five feet below, is the plant which daily performs these miracles. One could be in the kitchen next door to it and not know of its existence for there is neither sound nor smell to tell that there are engines producing power and light, and refrigerating machines making ice, and boilers generating steam to supply power and heat, just through an ordinary door. The thing that cannot help striking the observer, is that this same note of quiet efficiency pervades the whole plant. No one seems to hurry, no one raises his voice, and the work goes on with a great deal less fuss than can often be seen in the boiler room of a one-horse saw mill.

It can readily be understood, that the provision of an entirely new building, with all these services to be installed, the while all the functions of the old building went on undisturbed, was somewhat of a problem. However, by ample foresight, and careful preparation for every move, the entire new installation was installed and connected up without any one outside of the staff knowing it was going on. No guest suffered a moment's inconvenience, and the fact that the new building was just about ready by the time the heating season came on made it all the more important that the system should be ready to function immediately it was called on. It was able to fulfill this condition, through the efforts of all concerned, contractors and staff alike.



The hot water heaters and motor driven centrifugal pumps.

The original plant of the hotel, which is operating to-day, consists of three watertube boilers, of 250 h. p. (rated) each. These boilers supplied steam to the engine room, the kitchen, and heating system, and to some extent are doing the same thing at present. Eventually these boilers will be discontinued, when the new plant is completely installed, but just now they are doing business as required.

In the old boiler room are the original vacuum pumps and boiler feed pumps, and the original heater. The vacuum pumps are of the Burnham type and are two in number. One of them is 10 x 14 x 16, the smaller one being 8 x 10 x 12. These pumps are so arranged that either of them can operate on the heating system alone, while the other handles the kitchens and laundries, or they can either of them handle the whole thing.

The main steam header from the boilers is arranged to supply the engines and refrigerating machinery, and can also supply the heating services. In addition to this there is a 4 inch auxiliary line, which is also connected, as a loop leaving the main header free for any necessary repairs.

We had the pleasure of looking in the top drum of one of these boilers, which was down for cleaning, and we can safely say that never have we seen a boiler in better condition after eighteen years of service. The plates were smooth and showing just a suspicion of shine, due to the judicious use of graphite. There was no sign of oil, which might easily be apparent after such long service in a plant using exhaust steam for heating. Mr. Pike is very proud of his boilers, and has good cause to be.

House Service Water

At the east end of the engine room, after passing the ammonia condensers and the new distributing board for the new building, one reaches the hot water heaters and also the house service pumps.

It is necessary in a building of this height to provide other means than the ordinary city water pressure to supply the upper floors, otherwise they would go without. The height from the engine room basement to the gallery where the water tanks are situated is approximately 220 feet, and as this corresponds to a pressure of 95.48 lbs., it can be understood that it is beyond the reach of the ordinary city water works pressure.

In order to insure a constant supply of water to the rooms, two house service pumps are fitted in the basement which are controlled automatically by the water level in the tanks on the roof. These pumps are of the type known as centrifugal, direct connected to motors. The illustration shows the arrangement plainly. These pumps are designed to deliver not less than 200 gallons per minute each under the conditions prevailing, which are, of course, a suction pressure corresponding to the pressure in the city mains, and the discharge due to the head water. The float controls are so arranged that the higher float will first start one pump, and then if the water still drops, a second float will start the second pump. As the water gains the pumps will be cut out in the reverse manner the lower float cutting out the second pump started, and the upper one cutting out the first pump when the water level is regained. It may be mentioned here that the consumption is over 200,000 gallons per day. It has been observed by actual timing, that from the time the float trips the control until the water is being delivered into the tank, is exactly eleven seconds. This is pretty nearly as quick as thinking.

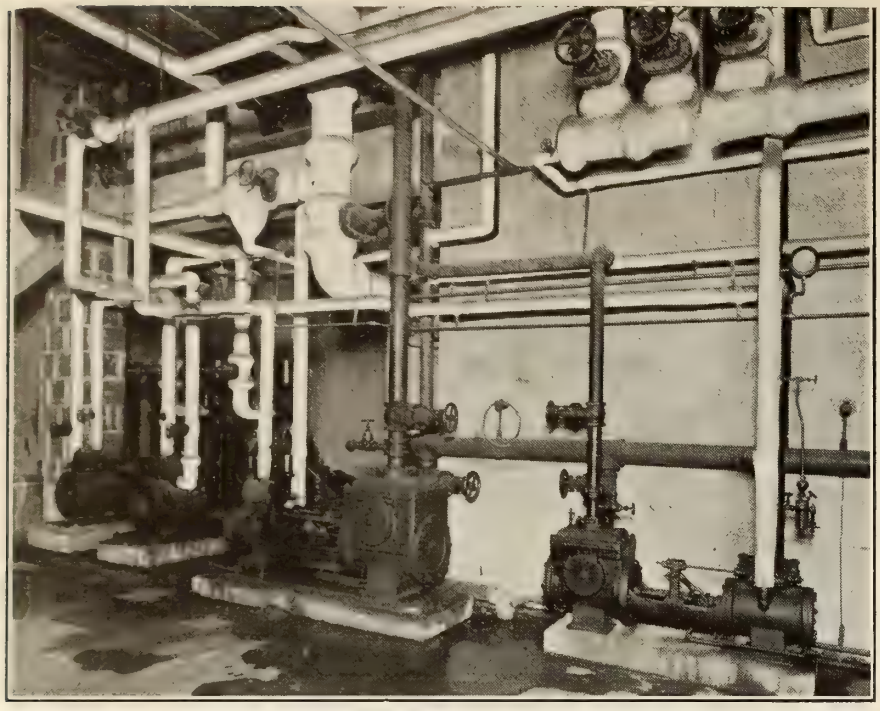
The hot water heaters contained in the same room as the house service pumps are also shown in the photograp. The large one is a combined hot water heater and storage tank, 48 inches in diameter by 168 inches long, inside measurement, with a storage capacity of 1,350 gallons. The shell is of steel ⅜-in. plate, the longitudinal seam being double riveted. The heating surface is provided by 450 feet of 1¼ in. outside diameter No. 16 gauge seamless drawn brass tubing. The tubes are U shaped, and both ends are expanded into a forged steel header, which is bolted to the steam expansion chamber. The overhanging ends of the tubes are supported in such a manner as to take the strain off the neck where they are expanded into the header.

The steam connection to this header is 5 in. and a 2-in. drip is provided for the condensation. The tank is fitted with relief valve, thermometer, automatic regulator, etc.

In addition there is a smaller heater for supplying the laundries and kitchens, 42 inches diameter by 120 inches long, and containing 720 gallons storage capacity. The heating surface in this heater consists of 300 feet of 1¼ brass tube No. 16 gauge, and the same fittings as the larger one.

The drips are arranged to be carried either to the vacuum pumps or to the sewer, as may be required.

Front view of new 400 h.p. boiler and stoker.



Feed and vacuum pump. The air-eliminating tank is in the corner above feed pumps.

The New Boiler Room

Leaving the pump and heater room, we journey through a corner of a kitchen, absorbing an odor of savory soup in the process of boiling in huge copper kettles, along a corridor, round two or three more corners, meekly following our guide, until we arrive at the head of a staircase. As we are already in the basement, it looks as though there must have been some considerable excavating done when we have more stairs to go down.

This is the case, as we find. The new boiler room floor is just forty-five feet below the level of the sidewalk, and quite a long way from the engine room and the original boiler room. If the plans had been carried out as originally conceived, or as they will eventually be carried out, this isolated position would not matter, but as things are, it involved a good deal of trouble.

The new boiler room was designed to contain four boilers, and these four boilers were to take off all the load from the boiler plant, which would then be obsolete.

The new plant when complete will consist of three 250 h.p. boilers and one 400 h.p. At present the 400 h.p. is the only one installed. This is a case where the engineers propose, but the financiers dispose, and for the time being these gentlemen decreed one boiler only.

Had the original plans been carried out immediately, it would have meant that one day the new piping could have been connected to the old main steam pipe in the engine room and the old boiler room and its connections from the engine room back could have been cut off, and dismantled at leisure.

As it turned out, the two plants have had to be interconnected, so that the new 400 h.p. boiler at one end of the building is working in connection with one of the old 250 h.p. boilers at the other end of the building. The new boiler is considerably below the level of the old boiler in addition to being so far away from it. This of course involves operating difficulty, when the vacuum return system is remembered. If the operators in the new boiler room do not observe good care, they will take all the returns from the whole building, and leave the higher boiler with no hot water for feed purposes. However, the men in the new boiler room manage very nicely to check off their pump sufficiently to keep the other fellows going without any trouble.

The piping arrangement in the new boiler room, installed for the heating contractors by W. J. McGuire, Ltd., can be fairly well seen by the illustration herewith. There is one showing the main steam pipe leaving the boiler top and coming down in two very nice expansion bends to the header, which goes across the boiler room to the main riser.

From the boiler the main steam also goes across to the engine room, where it connects to the header supplying steam to the engines, and also by a branch through suitable reducing valves to the heating main. In this way steam can be supplied to the engine room or the heating system from either boiler room.

The main riser which is fitted with expansion joints goes right up to the sixteenth story, to a pipe gallery. Here it connects into a horizontal main on the ceiling, from which branches are dropped to each floor to supply the radiators. This overhead distribution system is used entirely in the new building.

The returns from the radiators come back through risers into a four-inch main which connects with the vacuum pumps. The vacuum pumps discharge into an air eliminating tank which is situated on a gallery above the feed water heater. This tank is 36 inches diameter by 84 inches long. From this tank the water discharges through a water seal into the feed water heater, an automatic float being fitted to keep the water level constant. From the top of the tank an air pipe is led to the roof to discharge the air which is separated from the return water.

The feed water heater in the new boiler room is a "Star Vacuum" type, to supply 1,500 h. p. It is approximately 49 inches square by 8 feet high, and is furnished with an oil separator and water softening and purifying medium. There is a 6 inch connection to the feed pump suctions, which branches off to a 5-inch to each pump suction.

The feed pumps of which there are two, are of the outside packed type. They are of the simplex type, 14 inches by 9 inches by 16 inches.

There are also two vacuum pumps in this boiler room one of 10 x 14 x 16, and the other of 8 x 10 x 12. It will be noticed that these pumps are a duplicate of those in the old boiler room. It is the intention when the new plant is completely installed, to have both the large vacuum pumps in the new boiler room, but as the arrangement exists at present, each boiler room presents a completely independent unit if so required. The new boiler is fitted with a three retort standard type underfeed stoker. There is a blower engine and fan for furnishing forced draft.

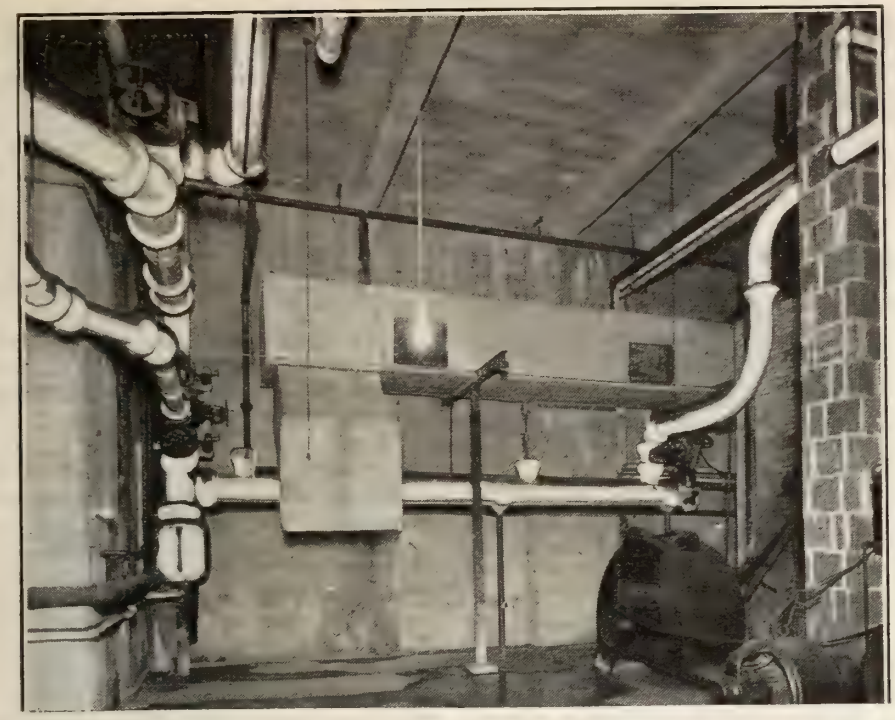
For the present coal is dumped down a chute from the street level, and fed into the stoker hopper by hand, but when the plant is complete, there will be a conveyor from the bunker to the hoppers, eliminating the hand work.

The pressure carried on the main steam piping (high pressure) is 125 lbs. and this is reduced where required through reducing valves to supply cookers, washers, laundry, and heating system.

The main steam header is carried over to join the present header in the engine room, and from this header are carried all the necessary connections to pumps, etc., as well as a reduced steam connection to the heating main, and a reducing bypass to the heater.

The exhaust piping and heating mains are so arranged that there is no possibility of a high pressure being developed in the low pressure lines, an atmospheric relief valve guarding against any possibility of such an occurrence.

All the heating arrangements above the basement in the old building are taken care of by the main return system, but the heating apparatus on the basement level is provided with a separate line. This was found necessary some years ago before the new building was ever thought of, and considerable



This view shows steam connection from new boiler crossing to riser and bypass.

trouble was experienced with one section of the old building.

It was discovered that this trouble was due to what practically amounted to a water seal on the return piping, which dropped below the level of the vacuum pump, and then rose again to the pump suction, forming practically a U bend and holding up the returns from this particular point.

This bend was straightened out by the introduction of this special basement line, and the trouble was forever eliminated.

Boiler Room Drainage

Owing to the fact of the new boiler being so far below the street level, it is also below the sewer level. Provision has therefore to be made for taking care of the surface water which would otherwise lodge on the boiler room floor. To handle this there is fitted two No. 2 grade sum pump and sump.

The sump consists of a 48-inch by 48-inch by 6 feet deep brickwork well, and the pumps are two vertical centrifugal two-inch, direct connected to 240-volt direct current motors. These pumps will deliver 75 gallons a minute when discharging against a twenty foot head. They are automatically operated by floats in the sump, and a second one if the first pump cannot overcome the water. Auxiliary steam pumps for this purpose are also fitted as a standby.

Pressure on System

The heating system carries a pressure varying from atmospheric to 1 lb. per square inch on the feeding side, and the vacuum pumps maintain a vacuum of about 15 inches on the return side. This gives a total difference of pressure when the syphon traps on the radiators open of about 8 lbs. per square inch, so that there is little possibility of any holding up of the system.

It is absolutely necessary that the radiators should function without any hammering or gurgling noises and the high vacuum maintained materially assists in this result. There is an entire absence of any noises throughout the whole system, which speaks well for the general workmanship and arrangement of the installation.

When the heating is taken care of there is another most important feature remaining, and that is the ample ventilation of the rooms and public assembly halls, of which there are quite a number.

This is taken care of by a number of fans, each caring for a different department. The large ballroom on the top floor requires a fan all to itself, as may be supposed, when it is remembered that there may easily be from 600 to 800 people dancing there at one time.

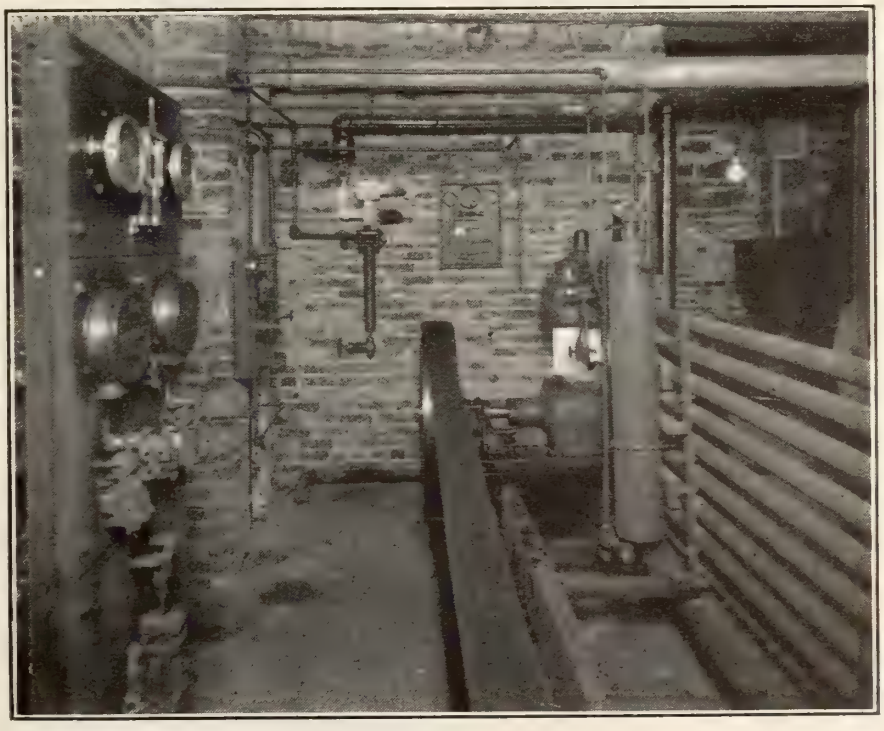
The fan supplying ventilation for this room has a capacity of 15,800 cubic feet per minute against a static head of ⅞ inch, and an outlet velocity of 1,700 feet per minute. This fan is driven from a motor by a belt drive.

There is also an exhaust fan for the ballroom with a capacity of 13,000 C. F. M. against a static head of ¾ inch, and a velocity at outlet of 1,400 cubic feet per minute. These two fans are arranged so that the direction of the air current can be diverted in the following manner. In ordinary weather, the supply fan draws in air from the louvres in the side of the building, and the exhaust fan takes the air from the room and discharges it outside.

When the weather is exceptionally cold, the dampers communicating with the outside air are closed off, and the damper between the exhaust fan duct and the supply fan duct. The air is then taken from the ballroom, passed through the air washer, with its tempering and reheating coils, and returned to the ball room at the proper temperature and humidity for the comfort of the occupants.

There are two fans with a combined capacity of 29,600 feet per minute for exhausting the bathrooms, and for the kitchen on the top storey there is also

(Continued on page 16)



Refrigerating machine working automatically for upstairs kitchen.

Reduction In Pay For Montreal Plumbers

Master Plumbers' Association and Local Unions Now Negotiating—Five Cents an Hour Less—Cut Generally Acceptable, But Men Object to Abolition of Double Time for Sundays and Holidays

MONTREAL.—If the negotiations now on foot come to an amicable conclusion, between the Master Plumbers' Association and the local Unions, the rates of pay for Montreal plumbers will be lowered five cents an hour. The only drawback now appearing between the two forces is the abolition of double time for Sundays and holidays, and time and one-half for Saturday afternoons and overtime work.

The proposal submitted to the Master Plumbers by the local Unions was that a rate of pay for the coming year of 70 cents an hour for the highest class men, and 65 cents an hour for the next qualified, be paid, with time and a half for Saturday afternoons and overtime work, and double time for holidays, such as was the arrangement last year. It is also asked that in view of the lower scale of wages, a preference be given to the members of the National and Catholic Unions.

This was taken up by the Master Plumbers' Association, who made a counter proposition, providing for a general decrease in the wages of plumbers of five cents an hour all around. The proposition submitted by the Master Plumbers provided for the division of the plumbers into three classes, the first to get 70 cents an hour, the second 65 cents and the third 60 cents. The idea of allowing time and a half for Saturday and overtime, and double time for work on holidays was rejected.

The matter is now being taken up by the Plumbers' Section of both Unions and will be considered at a general meeting in the near future.

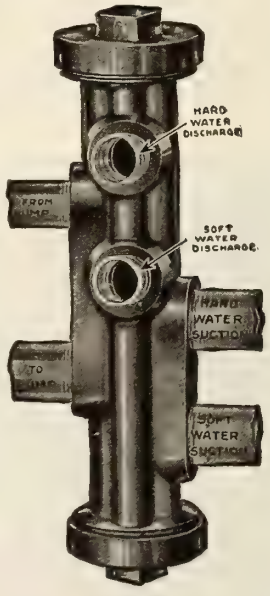
New Plumbing Goods

DUAL AUTOMATIC VALVE

The Westco Pumps, Ltd., of Toronto, Ont., are placing particular emphasis on the Westco tankless water system, at the same time drawing special attention to the dual automatic valve installed in connection with these pumps. The Westco product is described as a tankless electric automatic water system consisting of a pump directly connected to an electric motor, a suction chamber and a pressure governor switch, all mounted on a base ready for linking up with plumbing service and electric wiring. One of the features outlined by the makers is the fact that fresh water is pumped direct from the well without any intermediate tank. The action of the pump is described as instantaneous, commencing with the turn of the tap, and stopping when closed.

The dual automatic valve enables the ready acquisition of either hard or soft water, without the preliminary closing of hand valves or similar changes. It can be used in connection with two-tank, single tank or tankless systems. The methods of operation described by the manufacturers follow:

There are six openings. Two are connected to the inlet and outlet openings of the pump; two are for the suction lines to well and cistern; and two are for discharge into tanks or to faucets. Three pistons traveling in a cylinder are so spaced that when the soft water suction port or opening is closed, the hard water suction port will be open; and the two corresponding discharge ports will be closed and opened. (The ports connected to pump suction and discharge are always open). The pistons which slide up and down, opening and closing the ports, are actuated by pressure. Drawing off water at any soft water faucet causes the pressure on the soft water line to reduce. Then the greater pressure on the hard water line. exerted against the pistons, moves them into position to close the hard water openings.



Dual Automatic Valve

MANUFACTURERS CONDEMN WHOLESALERS

Continued from page 9

"Under the heading 'plumbers should have show room.' another gentleman states that every plumber ought to get a show room and that only those who want a better class of goods would go to a jobbing house where they can get a larger selection. Well, this is not our case. We have a large selection in our show room, but every time we lose a sale to the wholesaler it is on account of the price not because we have not the goods.

"Mr. Editor, it is no use to try to escape from this fact; the plumbers are not protected by the jobbers, especially throughout the Province of Quebec and Maritime Provinces. I do not know much of the Western Provinces neither the Province of Ontario, but I presume they are not much better in that respect."

AN INTERESTING HEATING AND VENTILATING PLANT

(Continued from page 15)

a fan having a capacity of 10,700 cubic feet.

There is a boiler room supply fan, with a capacity of 15,000 C. F. M., and a boiler room exhaust fan with 23,600 cubic feet capacity.

There is in addition in the engine room an air washer and fan with tempering coils for supplying air to the basement. The tempering coil and reheating coil have between them 960 square feet of heating surface, and they are guaranteed to provide absolutely pure air. This air is first relieved of all its moisture in the tempering coils, cleaned of all impurities, and then passed through the reheating coils at a definite temperature and relative humidity, which can be controlled to any desired point.

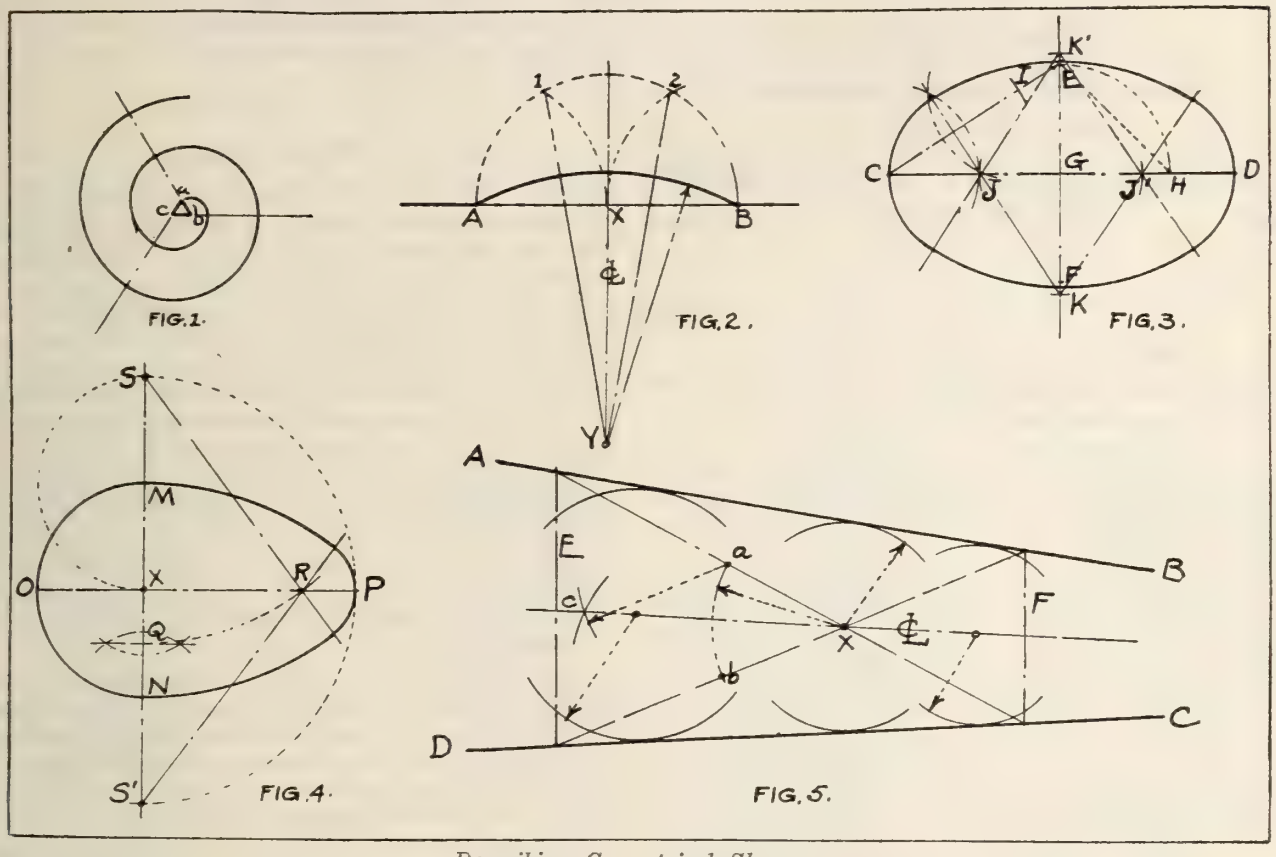
FAMINE COLLECTIONS

Canada is being intensively organized and solicited for aid to the starving Russians. The strongest pressure for contributions will be on financial institutions primarily, and then on manufacturers, merchants and business concerns generally. They have, therefore, a very vital interest in the question. We have pretty well all we can do taking care of our own destitute at this time. But we can do that and still have some to spare for less fortunate foreigners and particularly for suffering but deserving Russians.

The fact that these people have been so fearfully exploited by, and are still under control of a group of grafting foreigners, is no reason why we should withhold our aid. We should have no sympathy with those who suggest they should be allowed to suffer. The difficulty is to know how we can get our contributions to the real sufferers. We do know that during the last year or more large sums have been collected in Canada which never went beyond the Soviet propagandists within our own borders. Of the many so-called Russian Relief funds, we know of but two that are perfectly legitimate. So crooked are Soviet conditions that persons in this country desirous of sending money to their families in Russia are advised not to do so as only a small per cent., if any, will get to them even through British and United States official channels. The real Russian Red Cross of the war days, still in existence, advise their British colleagues against supporting any of the Soviet schemes and go so far as to say that internal conditions in Russia are morally as bad as in the worst days.

Rudiments of Pattern Making

By O. W. KOTHE, Principal St. Louis Technical Institute, St. Louis, Missouri.



Describing Geometrical Shapes.

MUCH of pattern drafting or, we should say, all of pattern drafting, and all other kinds of drawing have their outgrowth directly from descriptive geometry.

Now these rules of treatment are not always easy to decipher and even though they may be understood by workmen and even distinguished draftsmen, still at that it is very easy to make a slip.

So in this drawing we have a few problems of interest in which figure 1 is describing a volute from the vertices of a triangle. To describe this volute, draw a triangle as at a-b c, making all sides equal and then extend the side lines their different directions as shown.

Now for using each one of these points as a center, b-c-a, we describe a third of the volute from each point. Then by changing centers and lengthening the radius, the volute is automatically produced.

As many spirals can be made as you desire, always leaving the same center. This, of course, makes the rest of the volutes of the spiral lay parallel to one another, and is not always the exact treatment sought for.

There are other volutes developed by different methods, and some of these give us a graduating distance, as the volute progresses, so that the lines are not parallel to one another as in this case.

Figure 2, we have a drawing showing the tri-section of an arc, as was recently discovered, by a senior scholar of a Massachusetts High School.

Its geometrical construction is very simple, although it is only approximately accurate. It would seem at first thought that it would be geometrically accurate, but this is not possible under this construction.

However, the present treatise may be used and after checking up the small variation can be adjusted. Later reports have it that still another treatment is found for tri-secting an arc, which should be geometrically and mathematically correct.

By this figure 2 we let A-B be the arc and then we draw a chord line as A-B through the arc. We bisect the line which gives us X, and from this center we describe the semi-circle A-1-2-B. Now with the same radius and using the points A and B as center, we describe arcs from X to intersect the semi-circle in points 1 and 2. Then by drawing lines from points 1 and 2 to Y, the center for the arc A-B, these lines are supposed to tri-sect the arc A-B. By an inspection it will be observed, the sector 2-B is somewhat fore-shortened over the center zone 1-2, where the lines pass over the arc, and herein their discrepancy occurs. It is, however, approximately correct, and by re-checking with one of the spaces the spaces can be quickly adjusted.

In figure 3 we have described an oval, where T-F is the short diameter and C-G is the long diameter. We use G as center and describe the arc E-H. Then use H-E as the radius and use C as the center; cross the line G-F in point 1.

Next bisect the line C-I, extending your line to intersect the 2 axis lines in points J and K. These 2 points will then be the centers for describing the end and side arcs.

By lifting these points over from the center G as J′ and K′, we can then describe the arcs for the oval using J and J′, also K and K′ as centers. Divisional lines can be drawn before describing arcs, so you can see where to stop and start your arcs.

In figure 4 we have a treatment for describing an egg shaped oval. Let M-N be the diameter of the large end, and so from X we describe the semi-circle M-O-N. Then using the full diameter as M-O and X as center, we mark points P, also S and S′.

Now bisect the radius X-N in point Q, and pick this distance and set as P-R, which gives the center for the small end arc. Draw the divisional lines and describe the arcs, using R and S and S′ as centers.

In figure 5 we have a treatment for finding the center line so that tangent arcs may be described to certain given slant lines. Let A-B and C-D be the given lines. Then at any place square the

Continued on Page 32.

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Where The Plumber Stands

A GREAT DEAL has been heard at various times concerning the comparative wages paid plumbers and others engaged in various branches of the building industry. The remark has frequently been heard that plumbers have been in the forefront as opposing any wage reductions and that their demands have been such as to be a big obstacle to a resumption of normal building.

A comparative scale of wages paid to various trades in an Ontario city has been taken by Sanitary Engineer as a basis for the following information. Plumbers were paid 29 cents an hour in 1901, increasing as follows each year since: 31¼, 32, 33¼, 34¼, 38, 40, 40½, 40¾, 43½, 44¾, 47, 47, 47 1-3, 51, 51, 51¼, 60, 69, 83, 80 cents in 1921. Other trades have increased in that time as follows: Bricklayers from 40 cents in 1901 to $1.00 in 1921; carpenters from 25 cents to 78 cents; electricians from 22 2-3 cents to 80 cents; painters from 22½ cents to 73⅛ cents; builders' laborers from 18¾ cents to 52⅛ cents. It is evident from these figures that plumbers' wages have not increased as rapidly in the past twenty years as have those of other trades and to-day are no higher than electricians and not as high as bricklayers.

A Big Field For Business

A RECENT survey made of conditions in farm homes in America indicates the extensive possibilities that exist for business in modern sanitary and heating equipment in the rural districts. An average of nine thousand records were secured to form the following survey.

As to the work the farm wife is called upon to do, it was shown that on the average she has 7.8 rooms to look after and 1.6 stoves to care for; 79 per cent. have kerosene lamps, 61 per cent. have to carry water an average distance of 39 feet; 96 per cent. of them wash and iron and 92 per cent. do sewing, spending a daily average of 6 hours in mending; 94 per cent. engage in bread making.

Now for the facilities which those farm wives have to do this work; 32 per cent. have running water; 22 per cent. have power machinery; 48 per cent. have water in the kitchen; 60 per cent. have a sink and drain; 57 per cent. have washing machines; 47 per cent. have carpet sweepers; 95 per cent. have sewing machines; 96 per cent. have screened windows and doors; 90 per cent. have outdoor toilets, and 20 per cent. have bath tubs.

It is evident from the foregoing that while the farmer has invested in certain labor-saving equipment for his barn, that he has grossly neglected the home in even necessary sanitary requirements. The need for education along the lines of labor saving equipment is quite apparent. The U. S. Department of Agriculture says, "What the farm woman needs and what she can be taught to buy is more labor-saving equipment. In equipment the farm home is far behind the field or even the barn, with the result that the farm woman's task is no easy one. The department looks to manufacturers and advertisers to do their share in improving conditions in the farm home just as they have in other parts of the farm."

Manufacturers of such equipment do not need any urging for greater effort to educate the farm wife, but where the need lies is for the plumber with prospects in the rural districts, to connect up with the national sentiment which is being encouraged and turn this sentiment into actual business for himself.

The Census

THE CANADIAN Census returns which have just been completed, give an opportunity for some interesting comparisons. Our present total population of 8,769,489 persons represents an increase of 21.5 per cent. during the past ten years, and an increase from a population of 3,689,257 fifty years ago. The increase in population in the last ten years amounts to 1,475,988, which is very small compared with the advances which the country has made in other directions. The debts which Canada carries representing development of the country, and the natural resources which exist in the Dominion make advisable the securing of more population of a selected nature to help develop our resources and carry the load of taxation.

Immigration in the past eight years has been greatly interrupted by the war. It is but a few years ago that under the stimulus of a tide of immigration the West was asking for a census every five years instead of ten.

A peculiarity of this unevenly settled country is that Nova Scotia with an area of 21,068 sq. miles, has a population equal to that of British Columbia with an area of 353,416 sq. miles. Ontario with 2,929,054 is the home of almost exactly one-third of the people of the Dominion. Ten years ago Ontario boasted 35 per cent. of the population of the Dominion, thus its proportion has decreased. Quebec's share has also declined from 28 to 27 per cent. of the total for Canada, in the ten years. All provinces except Prince Edward Island have shown steady growth. The weight of population has moved westward, the West showing an increase from 24 per cent. of the population of Canada in 1911 to 28 per cent. in 1921.

ONE OF THE barometers of conditions in general is the question of employment. In this connection it is significant that employment during January represented a marked increase compared with a year ago. Returns from 5,800 firms in Canada with a total payroll of 641,146 persons show that increases in staff gave employment to approximately 19,000 more workers. The gains represented approximately 7,000 workers in Quebec, 5,000 in the prairie provinces and 4,600 in Ontario. The nature of the employment represented indicates partial recovery in the textile and iron and steel industries.

For some years past the principle has been laid down that business success or failure was largely personal—in other words that the individual himself was chiefly responsible for failure to succeed. In 1918 the proportion of failures credited to causes originating within the individual himself rose to its highest point, 86 per cent., while outside influences were credited with causing 14 per cent. The 1919 returns were almost identical with this, 85.9 per cent. In 1920 the proportion due to personal causes fell to 83.1 per cent. In 1921, however, the trader who failed was comparatively speaking "a child of circumstances," only 74.8 per cent. of the 1921 failures being due to cause inherent in the individuals, while 25.2 per cent. were beyond his control. Lack of capital covered slightly over one-third of the failures in both 1920 and 1921.

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights —Keep the Entire Series Where It May Be Referred To And Studied

Article No. 50 of Series; Illustration 61-64

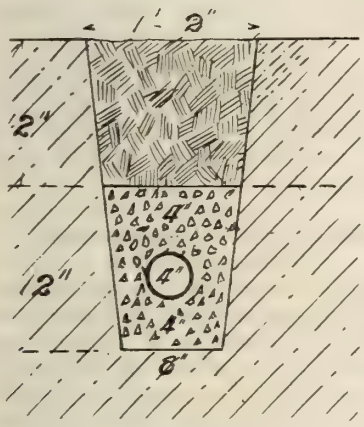

FIG 61.

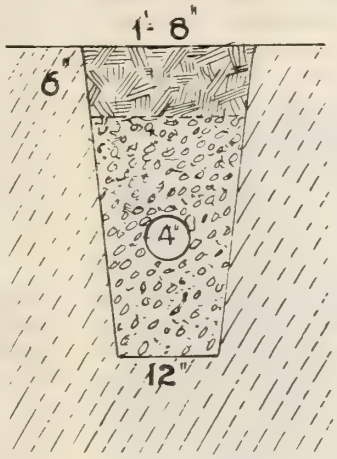

FIG 62.

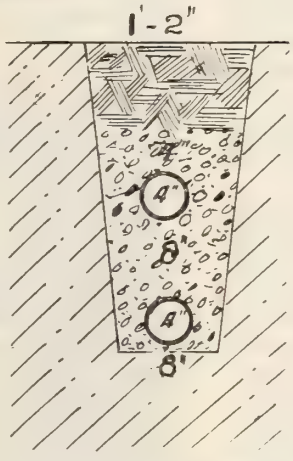

FIG 63.

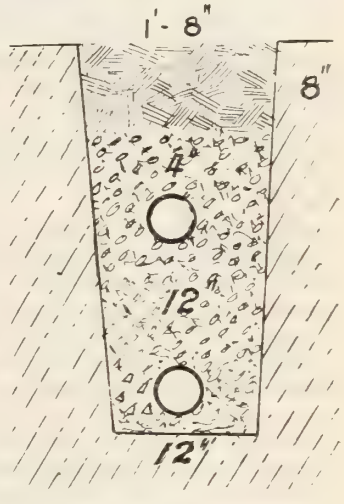

FIG 64.

FIGS. 61, 62, 63 and 64 give cross-sections of the cut and the best method of filling in the same to increase the filtration process in the various soils. for if the subsoil drains were packed tightly around with clay or any other impervious soil the sewage would in time follow the pipe line and be discharged, without purification, into the outlet stream.

In laying the tile the main object is to arrange and provide for ample opportunity for the circulation of air, both through and around the pipe, which not only increases the absorption of water but hastens bacterial action and that is the main reason for laying and covering the pipe with cinders or coarse gravel and the depth and quantity varies according to the soil—the heavier the soil the greater amount of filling required. The subsoil drains should be laid true to grade, and require little fall, with ¼-inch open joints protected with broken stone to prevent the earth, tree roots, etc., obtaining access to the pipes and blocking same up.

The temperature of the sewage in the tank in cold climates is generally sufficient to prevent the tank effluent freezing in the filtration area. Should any difficulty arise through this condition, and the outlet elevation will permit, the pipes should be kept 3 to 4 feet below the surface, but as the tank effluent requires all the aeration it can obtain the shallower the pipes are laid the better the chances are of it obtaining the oxygen from the atmosphere and no single case of frozen effluent has come under the writer's notice in his experience with pipes laid at 2 feet depth with the single exception of the pipe outlet in a Canadian installation. So that in very cold climates it would be advisable to place the outlet pipe 4 feet below the earth surface so as to protect same from frost.

The capacity of the tile drains should be nearly equal to the volume of tank effluent discharge at any one time so that the entire drainage system under filtration would be filled and emptied at the same time, allowing the intervals of rest needed between each discharge, in order that the land under treatment can have plenty of time to take up sufficient oxygen for the next application of sewage. This is best regulated in the design and capacity of the second chamber or dosing chamber with the automatic flushing syphon. In some cases, for the sake of economy, the syphon is not installed and a simple central pipe overflow connected to the drainage system is substituted. This is not good practice, however, as proper distribution is impossible and the sewage just trickles constantly in the pipes and only the first part of the filtration area or drainage tile receive the tank effluent and in time becomes sewage sick and little purification then takes place.

Experience has given another good method of obtaining the amount of tile required for efficient filtration results and that is each foot of 4 inch tile drain will take care of each gallon of liquid discharge into the drains from the tank in open and porus soils. In heavy soils approximately two feet of 4 inch tile is required per gallon.

PUMBERS AGREE TO REDUCED PAY

Winnipeg, Man.—A ten per cent. reduction in wages has been accepted by the Plumbers' union of Winnipeg, as an evidence of the union's desire to co-operate in the revival of building activities, R. C. Neill, business agent, announced.

According to the agreemnt which has be concluded with the master plumbers, the union wage will be 90 cents an hour. Last year it was $1 an hour. The eight hour day will remain in force, and there are no other important changes from last year's agreement.

The new wage scale will become effective May 1, simultaneously with all agreements made by the building trades unions.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

BUSINESS CHANGES

Stratford, Ont.—McDonald & Henry, plumbers, have dissolved partnership.

Montreal.—Westmount Plumbing Co. has dissolved.

OCCUPY NEW PREMISES

Moncton, N. B.—E. H. Hayward, has opened a plumbing shop at 48 Peare St.

Comber, Ont.—Harold Callwood has opened a new tinshop and plumbing shop here.

North Bay, Ont.—Mason & Campbell, plumbers, have moved to new premises at 97 Main St., East.

Moncton, N. B.—T. Johnson & Co., sanitary engineers, will occupy new premises in the Roy building.

Sandwich Plumbing and Heating Co., Sandwich, Ont., have recently moved into their new premises over the Acme Hardware Store on Sandwich St.

PLUMBERS HOLD LUNCHEON

Halifax, N. S.—The fortnightly lecture luncheon of the master plumbing and steam heating engineers was held at the Green lantern when Prof. Hunt, of the Dalhousie Chair of Commerce, lectured on book-keeping for the trade. There was also music and trade motion pictures.

NEW FILTRATION PLANT PARTLY IN COMMISSION

Peterborough.—Peterborough's new $300,000 filtration plant is in partial operation, and the improvement in the quality of water is distinctly noticeable. The plant is being tested out each night, and the day requirements are taken from the two-million gallon reservoir. This plan will continue until the tuning-up process has been completed to the satisfaction of the contractors and engineers.

DRAFTS NEW BY-LAW

Birch Cliff, Ont.—The final draft of the plumbing and building by-law was drawn up at a special meeting of the council. The new by-law will protect the purchasers of residences in the township, as no contractors will be able to erect any house or other building without submitting their plans to the council. This eliminates the practice of placing cheap plumbing in houses for sale, and will help to maintain sanitary conditions as the new by-law carries its penalties for those who do not comply with the future standard materials when building. The object is to avert any trace of infection by inferior plumbing methods.

INCOMPLETE PLUMBING

Toronto.—J. Alliston wanted ten dollars from W. Madge because the plumbing wasn't completed at the time promised. Counsel for defendants wanted to call the plumber to show he was sick and couldn't the work. "The tenant," observed the judge, "has nothing to do with the reasons why a contract has not been carried out."

PLUMBERS CURL AT MONTREAL

Montreal.—An exciting curling match was staged at the Montreal West Curling Rink between a select team from the staff of James Ballantyne, skipped by Jas. Ballantyne, and the Montreal Master Plumbers, skipped by John Watson of Caledonia fame. The game was a ten end match and at the tenth end the score was ten all, the usual course to decide a tie is to play an extra end, but being plumbers, they decided to make the match a twelve end affair which again resulted in a tie, twelve all.

The Mayor of Montreal West, James Ballantyne, saved his rink from defeat on seevral occasions. In the first stages of the game Montreal West stood eight to Caledonia nil. Caledonia then sat up and took notice and made the score ten all at the close of the tenth end. In the eleventh end Caledonia made one shot and on the twelfth end the score was again tied. On the twelfth end Caledonia was laying five shots with one stone to play by Ballantyne, he making a beautiful shot with a well directed runner cutting off the three irons on the button and his own iron laying shot, making the tie at the twelfth end.

After the game refreshments were served and the visitors entertained in a manner known only to the Mayor of Montreal West. Music, songs and stories prolonged a very pleasant evening.

Teams

Montreal West—W. Wilson, F. G. Loranger, D. M. Ballantyne, Jas. Ballantyne—Skip.

Caledonia—W. U. Hughes, P. C. Ogilvie, Jas. Griffin, John Watson—Skip.

John Watson wound up the evening with his favorite ditty, "The Cat Came Back" rendered in his own inimitable style. Auld Lang Syne and the National Anthem brought to a close a memorable evening.

SCARBORO'S PLUMBING BY-LAW

Scarboro Township Council held a busy session in the Council Chamber, Birchcliffe, with the Reeve, E. M. Croker, in the chair. The plumbers' by-law received its first reading, and will be passed at next meeting of Council.

SURPLUS OF WATER FUNDS

Brighton.—Brighton Water Commissioners expect to have a surplus of some $900 or $1,000 over and above debenture rate and the upkeep of the Water Works System, and have been given permission by the Village Council to expend it in laying additional water mains where most needed in the town.

SURPLUS IN BELLEVILLE WATERWORKS

Belleville, Ont.—Waterworks Department operated last year at a net profit of $8,690.13. Manager E. T. Austin has so conducted the affairs of the department that while other cities have had increases in their water rates Belleville consumers have been supplied at the old rate and money made for the department.

SERIES OF LECTURES FOR HALIFAX PLUMBERS

Halifax, N. S.—A series of lectures is being conducted by the Master Plumbers of Halifax City, these lectures are along the lines of better business conditions for the merchant plumber. The lectures are given by well-known professional men, who, through economic studies, are well able to give very profitable information along these lines. They are attended by a very large number of prominent merchant plumbers of the city.

CONVENTION ONTARIO SOCIETY D. S. and H. E.

The Eleventh Annual Convention of the Ontario Society of Domestic, Sanitary and Heating Engineers, will be held in Hamilton on April 6th, 7th and 8th.

The Hamilton Society of Domestic, Sanitary and Heating Engineers, will entertain at a banquet to be held on Friday evening, April 7th. Invitations will be forwarded as follows: To members of the Ontario Society of Sanitary and Heating Engineers, members of the Hamilton Society of Sanitary and Heating Engineers, Unaffiliated Sanitary and Heating Engineers of Hamilton and District, and Representatives of Ontario Manufacturers and Wholesalers.

WESTERN ONTARIO NEWS

Thos. Herron, 429 Ridout St., London, wants prices on heating, plumbing and electrical work for new $3,000 residence.

Ray Crosby, Highgate, Ont., wants prices on heating, plumbing and electrical work for new $4,000 residence.

Mrs. J. D. McDonald, Box 177, Ailsa Craig, Ont., wants prices on hot air heating and plumbing in connection with remodelling of residence.

The Wright, Teale Co., were awarded contract for heating and plumbing in connection with extensive alterations to the store of J. A. Nash at London.

Daniel Yeowood, of Shakespeare, Ont., is preparing plans for new $4,000 residence and wants prices on hot air heating, plumbing and electrical work.

Plans are being prepared by Dr. Scallon, Amherstburg, Ont., for residence to cost $5,000. Prices wanted on heating, plumbing and electrical work.

Fred Goring, 109 Briscoe St., London, Ont., wants prices on hot air heating, plumbing and electrical work, for new $4,000 residence he is starting.

James Long, of Seneca, Ont., is moving to Canfield, Ont., where he will shortly open a plumbing and tinsmithing shop.

The Board of Health, at Listowel, Ont., will obtain estimates immediately on the cost of installing a sewerage system for the town. J. W. Sangster, chairman.

Architect W. G. Murray, London, Ont., in preparing plans for a new six roomed school at Hensall, Ont., to cost $35,000. Prices wanted on steam heating plumbing and electrical work.

Plans are being prepared for new residence to cost $25,000, for John E. Smallman, Elmwood Ave., London, Ont. Prices wanted on heating, plumbing and electrical work.

Watt and Blackwell, architects, London, Ont., are preparing plans and will call for tenders shortly for all trades in connection with $250,000 sanatorium building at Preston, Ont.

F. E. Burke, plumber and tinsmith, St. Thomas, Ont., has purchased the three story brick building at 288 Talbot St., and is moving there in order to secure more accommodation for his steadily expanding business.

Plans for new six roomed school to cost $45,000 are being prepared by Architect W. G. Murray, Dominion Savings Bldg., London, for the school board at Springfield, Ont. Prices wanted on heating and plumbing.

James A. Charlton, who for several years has been manager of the retail store of the Gas Appliance Co., London, has been appointed sales manager of the Hydro store at London, and takes over his new duties on March 20.

Tenders are now being called for the new $100,000 hardware store at London, Ont., for the Cowan Hardware Co. Steam heating, plumbing and electrical work. John M. Moore, 489 Richmond St., London, architect.

The Death of Senator John Milne

President and Managing-Director of Burrow, Stewart & Milne, Hamilton, Ont., Dies After Sixty-eight Years Association With Metal and Foundry Trade—One of the Founders of the Steel Co. of Canada

THE DEATH of Senator John Milne, president and managing-director of the firm of Burrow, Stewart and Milne, Hamilton, Ont., removes a figure which was for years prominent in the stove and foundry business of this country. Senator Milne had been ill since last October and when complications set in he was too feeble to undergo the necessary operation and his death was therefore not unexpected. He was eighty-five years of age and had been identified with the iron foundry trade since 1854 when he commenced business with Charles Stewart and William Burrow, later forming the present firm. Both of his partners died several years ago.

LATE SENATOR JOHN MILNE

President and Managing-Director of Burrow, Stewart and Milne, Hamilton, and for many years connected with the metal and foundry trade, whose death is announced.

The late Senator Milne was born in Aberdeen, Scotland in 1838, and after receiving his education in his native parish began to learn the trade of a molder. Before he finished his trade he came with his father, the late John Milne, to Canada and the family settled in Hamilton. Here he continued to work at the molding trade in the foundries of the Gurney Company and shortly after he had completed his apprenticeship he and his friend the late Charles Stewart went to the United States where they both worked for a time. In 1864 they returned to Hamilton and in company with the late William Burrow the firm of Burrow, Stewart and Milne was formed and business begun in a small frame building on Carolina St., North.

The business grew under the management of the three men who were all experienced mechanics and it was but a short time until an enlargement was found necessary and new buildings were constructed at Hughson and Cannon Sts., which were occupied in November, 1871. Extensions were made from time to time and in 1898 the firm was reorganized and Mr. Milne was made president.

Mr. Milne had many other important business connections. He was one of the founders of the old Hamilton Steel & Iron Co., which has since developed into the Steel Company of Canada. He was also interested in the shipping interests and for a time served as president of the old Hamilton and Ft. William Steamship Company. This was later merged into the Inland Lines and later into the Canada Steamship Lines in which Mr. Milne had large interests. He always took an active interest in the welfare of the city and more especially in educational matters, having been for years a member of the board of library governors. He was also one of the first commissioners of Hydro in Hamilton. He was a Conservative in politics, having served as president of the Hamilton Conservative Association for nearly 25 years, and was appointed to the Senate during the government of Sir Robert Borden in 1915. He is survived by his wife and two sons, Charles K. and William M.

MILDMAY TO VOTE ON WATERWORKS BY-LAW

Mildmay, Ont.—The Mildmay council at its meeting gave the waterworks by-law its first and second reading, and it will be submitted to a vote of the ratepayers. The by-law provides for raising $1,114.12 each year for ten years.

The town has decided to lower the water rates to $6 per annum. The town gets possession of the system and the lands connected with it on April 1. The purchase price is $8,200.

WATERWORKS APPROVED

Port Credit, Ont.—Word was received here that the Provincial Board of Health has approved of the proposed local waterworks system, and the board preferred the intake pipe from the lake west of the town instead of from the east as formerly planned. The water to the west reaches a greater depth. There is a depth of 16 feet 1,000 feet out from the west end and only 10 feet out from the east. The new site for the intake is off Haney's Point. Under the new plan the system will serve the town more advantageously.

SUPERIORITY PURITY
DURABLE AS THE PYRAMIDS
For the Home
PORT HOPE
ENAMELED
PLUMBING
WARE
For the Home
PORT HOPE
ENAMELED
PLUMBING
WARE

Let this Salesman Work for You

This attractive well printed 72 page booklet should be placed in the homes of every prospect in your locality.

Everybody is interested in pictures and there are lots of them in this booklet. Bath room scenes showing different combinations of equipment are shown and these are followed by descriptions of each fixture in detail so that Father and Mother can choose whatever they need right in their own home.

Get the habit of leaving one of these booklets with each prospect you talk to. It will be read and re-read and all the time it is driving home its message that will result in a great many cases in business for you—business that you might otherwise have missed.

When the Grown Ups have finished reading the booklet Baby is likely to come along with a big pair of scissors and put a picture of a bath in every room in the house.

A supply of these will be gladly forwarded on request at no charge to you.

The Port Hope idea is to help you sell more plumbing fixtures. We want to co-operate with you in making 1922 a banner year and the above plan is only one of the methods we have adopted to help you in your sales.

Let's co-operate!

Port Hope Sanitary Mfg. Co.

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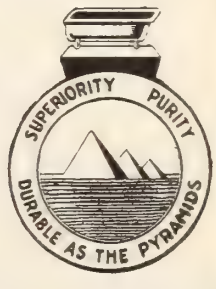


MORE DRINKING FOUNTAINS

Woodstock, Ont.—More sanitary drinking fountains for the city is the boon promised this year by the Board of Works and the Parks Board. The fountains are receiving various coats of white enamel and the final coating is being made a permanent one by a process of baking. A sample of the work was on view at a special session of the city council and the finished job is one which the citizens can hardly fail to appreciate.

BILL TO AMEND PUBLIC HEALTH ACT

Wilson Crockett, South Wentworth, introduced a bill in the Legislature to amend the Public Health Act. A contaminated well in Barton township is the cause of the bill, which provides that where a municipality desires to build a water system and the outlet is in or through another municipality the other municipality must "come in" on the deal, and if terms cannot be arranged the Railway Board will arrange the contract.

INCOME TAX BOOKLET

The Canadian Debentures Corporation, Ltd., have issued a booklet entitled "Dominion Income Tax Questions and Answers," the work of a tax specialist which simplifies for any individual, company or estate the preparation of the necessary income tax return slip. The booklet should prove of particular interest to business men, who may secure copies of booklet by writing to Canadian Debentures Corporation, Limited, 36 King Street, East, Toronto, and asking for booklet No. 37A.

PEREMPTORY ORDER TO SMITHS FALLS

Smiths Falls, Ont.—Smiths Falls Town Council has received a peremptory order from the Provincial Board of Health to begin proceedings on the installation of a filtration plant in connection with the waterworks system or suffer a fine of $100 per day for every day that the town remains without such a plant.

The estimated cost of filtration is $75,000, with cost of upkeep reaching $10,000 per year. Council will first see whether water can be brought by a pipe line from Otter Lake, seven miles away.

The town feels that it is being discriminated against by the Provincial authorities in this matter, as there are other towns and cities in Ontario with no better source of supply which get along without filtration plants. The Provincial Board of Health has told the Council that a seven-mile pipe line is impracticable, and Council, after investigation finds that a number of western Ontario towns have lines of greater length than seven miles.

Smith Falls has no sickness arising from impure water, and feeling against the Provincial health authorities is strong.

Contracts Awarded

Niagara Falls, Ont.—W. Edwards has heating and plumbing contracts for store and residence for Nelson Bros.

Amherstburg.—Palumbo Bros., Windsor, have contract for sewer construction on Alma St.

Montreal.—Selkirk Bros., have plumbing and heating contracts for store and flats for estate of J. H. Peck.

Wellington, Ont.—Miller & Libby, Oshawa have plumbing and heating contracts for consolidated school costing $15,000 for the School Board.

Montreal.—General contract for construction of sewers on Broadway West and Oak Sts. was awarded to Frascorelli Ltd.

Vancouver, B. C.—General contract for waterworks extension costing $6,526 for city is awarded to Vulcan Iron Works, Ltd.

Fletcher, Ont.—Gordon Drew, R. R. No. 1, Fletcher, Ont., will receive separate trade tenders for erection of school, plans with E. W. Courtice, Scane Bldg. Chatham.

Walkerville, Ont.—C. E. Greenan, 344 Ellis Ave., has plumbing and heating contracts for erection of office and sales room costing $75,000 for Walkerville Hydro Electric System.

Brockville, Ont.—Contracts for plumbing and steam heating for factory costing $50,000 for J. R. Baxter Co., Montreal, are awarded to H. Brown and H. Bedard.

Toronto.—J. L. Bloomer & Co., 6 Juniper Ave., have plumbing contracts for store and apartments costing $18,000 for Wyckham Hardware Co., Danforth Ave.; C. C. Bradley, 148 Essex Ave., has plumbing and heating contracts for residence for N. E. Severs.

Toronto.—W. M. Sutherland Co., Ltd., Lumsden Bldg., will receive tenders for office building costing $500,000 at corner Bay and Temperance Sts., for General Accident Insurance Co., of Canada; Jones & Co., 314 Clinton St., have general contract for alterations and additions to automobile showroom for Claude Pearce.

Bruce Mines.—Tenders will shortly be called for erection of school and hall costing $10,000 for School Board. Thos. Wilks is the architect, Saulte Ste. Marie, Ont.; Tenders will be received by J. A. Armes, 67 Charles St., Hamilton, Ont., for erection of school costing $50,000 on Baldwin St., Burlington, Ont.

Toronto.—F. O. Swann has plumbing and heating contracts for tabernacle costing $20,000 for Christian and Missionary Alliance; David Clark, 776 Dundas St., has plumbing and heating contracts for two stores and apartments costing $15,000 each for David Lavine, 61 Gloucester St.

Vancouver, B.C.—Plumbing contract for addition to factory for James Reid is awarded to Orr Bros.

Montreal.—D. Binet has plumbing contract for two residences for J. B. Ravary.

Gravenhurst, Ont.—Additional contracts for Muskoka Free Hospital for Consumptives include roofing and sheet metal, Douglas Bros., Toronto.

Winnipeg, Man.—Heating contract for garage and stores for Northern Motors Ltd., is awarded to Townsend Plumbing and Heating Co.

Montreal, Quebec—Plumbing contract for store and flats for T. Lefebvre is awarded to A. Huot; general contract for sprinkler system for building for Henry Morgan Co. is awarded to Worcester Fire Extinguisher Co.

Edmuston, N. B.—The Edmundston school board has awarded the contract for the erection of a central school building to L. A. Dugal, plumber and contractor, of Edmundston, on a cost plus percentage basis of eight per cent. with a guarantee that the cost shall not exceed $115,000, including commission.

Contracts for sprinklers, heating and plumbing for warehouse costing $120,000 for Barber-Ellis Ltd., are awarded to Purdy Mansell Ltd.; A. Miller has heating and plumbing contracts for two stores and apartments costing $22,000 for H. W. Ormerod; Robert Whitton has plumbing and W. Howard has heating contract in connection with four apartment duplex residences for Simmon & Steadman; Robert Jordan has plumbing and John McClandish has heating contract for club house for Oakwood Lawn Bowling Club.

TENDERS FOR PIPING

Montreal.—The City Purchasing Department are asking tenders for 731 tons of piping for the new aqueduct, to be delivered within six weeks of the signing of the contract, delivery paid at municipal yards. The pipes are needed in the following sizes: 1,017 pipes 12 feet long and 12 inches diameter; 100 pieces 12 feet long and 10 inches diameter and 300 pieces 12 feet long and 8 inches in diameter.

Peterborough's new $300,000 filtration plant is now in partial operation, and the improvement in the quality of water is distinctly noticeable. The plant is being tested out each night and the day requirements are taken from the two million gallon reservoir. This plan will continue until the tuning-up process has been completed to the satisfaction of the contractors and engineers.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

MARKETS AT A GLANCE

SANITARY and heating market developments include lower quotations on galvanized sheets, copper and brass semi-finished products, solder in various grades, light general purpose and engineers' wrenches, the Wiss line of tinners' snips, chain pipe wrenches, and everlasting blow-off valves. A further downward revision has also been made in quotations on chain pipe vises.

The reduction on rods, tubing and sheets in copper brass, reflects the easier tone recently apparent in virgin metals. Eastern markets record another recession on all solder grades, this being the second decline during recent weeks. The easier price levels on sheets and plates affect galvanized, black and annealed, as well as the imported sheet products. Bar product markets in iron and steel, appear with a slightly firmer undertone, this being attributed to the effort of certain southern producers to eliminate price shading for attractive orders. On the other hand, easier nominal levels are now generally noted on tin plates in certain primary circles. Quiet conditions are still reported in scrap materials, with the slight recovery in copper prices serving to stem the sagging movement previously recorded on yellow scrap grades. In the ingot metal markets, current conditions provide a series of minor developments, without any marked changes being featured.

Under the stimulant of favorable weather conditions, an early commencement has been made in building circles generally, and this movement is naturally reflected in the Spring demand for many sanitary and heating products. Such materials as pipe fittings, soil pipe, brass compression goods, closet outfits and fixtures, enamelled ware products, corrugated sheets, as well as eavestrough and conductor pipe, all principally depend upon brisk activity in construction work for improvement in the volume of future business. Both manufacturers and distributors are generally hopeful when expressing opinions regarding the trade outlook during the ensuing months.

MONTREAL MARKETS

MONTREAL, March 14.—Solders again feature the current markets, where a further revision in all grades is announced. Guaranteed, strictly, commercial and wiping is again reduced one and one-half cents per lb., while wire solder shows a further price decline of two cents per pound. Brass and copper sheets, rods and tubing also record another important change, sheet and tube prices being reduced 2 cents, and rods one cent per lb. The sheet markets are again included in the price developments, Queen's Head brand galvanized sheets showing a reduction of 25 cents per 100 lbs. on all gauges. Chain pipe wrenches and vises are both recorded with lower prices, also tinners' snips.

With the milder weather of the past two weeks, and the approach of Spring, business in plumbers' and steam-fitters' supplies in general shows signs of improvement. As practically all lines depend, for the most part, on building construction, it is felt that a continued improvement will be noted with the advancing season. Such lines as enamelled ware, soil pipe, corrugated sheets, eavestrough and conductor pipe, boilers and radiation, are reported as showing a slight impovement in sales.

CHAIN PIPE VISES AGAIN RECORD EASIER PRICES

Montreal.

A further revision is made in the quotations on chain pipe vises, No. 1 is now quoted at $4.00, No. 2 at $8.55.

WIRE NAILS REDUCED TO $3.75 BASE

Montreal

The easier tendency in the market for wire and wire products generally is now reflected on wire nails. The base price is reduced 15 cents per keg, bringing the quotations down to $3.75 base.

CHAIN PIPE WRENCHES HAVE REDUCED PRICES

Montreal.

Quotations on chain pipe wrenches show a reduction, with the following prices now quoted:

No. 31, $3.10; No. 32, $4.30; No. 33, $6.00; No. 33½, $7.75; No. 34, $9.50 each.

LOWER PRICES ON BRASS AND COPPER GOODS

Montreal.

The trend of copper in recent weeks on primary markets is now reflected in such products as brass and copper sheets, rods and tubing. Sheets in both metals are reduced 2 cents per lb., rods one cent and tubes 2 cents per lb. Lower quotations on these products is not surprising as the ingot metal has been decidedly easier in tone recently, although in the past week an improvement is in sight. Following are the revised quotations:

	Base
BRASS—	
Sheets	0 24
Rods, ½ to 1 inch, round	0 22
Tubing, seamless	0 30
COPPER—	
Rods, ½ to 2 inch	0 29
Soft sheets, plain, 16 oz. and heavier lb.	0 32
Plain tinned, 16 oz. and heavier, lb.	0 36
Polished and tinned, 16 oz. and heavier, lb.	0 41
Tubbing, lb.	0 32

Above prices are for full sheets or bars. Cuts 5c. per lb. higher.

SLIGHT REDUCTION IN QUEEN'S HEAD SHEETS

Montreal.

Minor reductions continue to feature the local sheet markets, and a slight revision in quotations on Queen's Head galvanized sheets is announced. Easier prices in this direction were anticipated, distributors claiming that while the tone of the market on the other side is little changed, conditions on this market warranted slightly lower levels to bring these sheet to a comparative basis. This revision again substantiates the prediction of dealers who have for some weeks past expressed the opinion that sheet markets in general would in all probability continue to show gradual decline, but reductions of any marked proportions were altogether unlikely. There is little change at primary centres in the

tone of these products, the improvement being slight up to the present, but with indications of a continued betterment as the weeks pass. Prevailing nominal quotations are as follows:

BLACK SHEETS—

10 gauge	4 00	4 50
12 gauge	4 10	4 60
14 gauge	4 40	4 70
16 gauge	4 50	4 80
18-20 gauge	4 55	5 05
26-gauge	4 60	5 20
22-24 gauge	4 65	5 25
28 gauge	4 75	5 35

GALVANIZED SHEETS—

10½ ounce	6 65	7 60
28 gauge	6 25	7 20
26 gauge	5 95	6 85
22-24 gauge	6 80	6 60
20 gauge	5 65	6 45
18 gauge	5 65	6 35
16 gauge	5 50	6 35
14 gauge	5 35	6 35
12 gauge	5 20	6 35
10 gauge	5 10	6 35

English Standard—	Queen's Head.	Fleur-de-lis
28 gauge	7 50	7 00
26 gauge	7 00	6 75
24 gauge	6 40	6 35
22 gauge	6 05	5 90
18-20 gauge	5 35	5 75

NOTE—These prices are for full bundles; an extra charge of 25c to 35c per 100 lbs. is made for broken lots. Extra for sheets 4 ft. wide, 50 cents per 100 pounds. Extra for sheets 3 ft. wide, 28 ga. and 10¾ oz. 25 cents per 100 lbs.

CANADA PLATES—

Dull.

18 x 24 x 52s	5 60
18 x 24 x 60s	5 80
18 x 24 x 75s	6 10

WELSH CANADA PLATES—

Polished.

18 x 24 x 52s	7 75
18 x 24 x 60s	8 00

BRIGHT TIN PLATES—

20 x 28 x 100 lbs., bases	16 00
20 x 28 IC., 112s	16 50
20 x 28 IX., 112s	18 50
20 x 28 IXX, 56s	10 50
20 x 28 IXXX., 56s	11 25

TERNE PLATES—

20 x 28 IC, 112s	16.00

NEW PRICES RECORDED IN TINNERS' SNIPS

Montreal.

Revised prices are given in Wiss tinners' snips, a reduction of varying extent being recorded on the various sizes. New net prices are as follows:

WISS SNIPS—

No. 6½—$3.80; No. 7—$3.15; No. 8—$2.50; No. 9—$2.25; No. 10—$2.05; No. 11—$1.50; No. 12—$1.35; No 13—$1.20 pair.

FURTHER REVISION IN SOLDER QUOTATIONS

Montreal.

A further reduction is made in solder quotations, all grades, with the exception of wire solder, being reduced 1½ cents per lb., the latter showing a decline in price of 2 cents per lb. This is the second revision on solders in recent weeks, a reduction of 2 cents per lb. being recorded only two weeks ago. One manufacturer stated that quotations on these products were simply following the trend of metals on primary markets, where in recent weeks tin, copper, lead and spelter have been displaying an easier tendency. There is now, however, a slight stiffening noted in these metals, and it is thought that the downward trend is over, for the present at least. Trade in lead products in general shows a slight improvement, although a further general betterment is anticipated from now on. Following are prevailing quotations, showing the revision in solders:

Lead pipe, per 100 lbs.	12 50
Lead waste, per 100 lbs.	13 50
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	10% off
Lead wool, lb.	0 13½
Lead sheets, 2½ lbs.	0 10½
Lead sheets, 3 to 3½ lbs., sq.	
Do., 4 to 8 lbs., sq. ft.	0 09½
ft., lb.	0 10¼
Cut sheets ¼c lb. extra and cut sheets to size, ¾c lb. extra.	
Solder, guaranteed, lb.	0 25½
Do., strictly, lb.	0 23½
Do., commercial, lb.	0 20½
Do., wiping, lb.	0 21½
Do., wire, lb.	0 33½
Zinc, sheets, casks	0 11
Do., broken lots	0 11½

CEMENT BUSINESS SHOWS SLIGHT IMPROVEMENT

Montreal.

Current business in cement is reported as showing a gradual improvement from week to week. The recent milder weather has stimulated sales to quite an extent construction work being allowed to commence in different quarters. Quotations remain unchanged since the revision earlier in the year, and local prices are the following:

CEMENT—Car load lots—

Per bag, f.o.b. cars	0 92
Per bag, delvered	1 00
Less car lots—per bag, f.o.b. yard	1 00
Per bag, delivered	1 10

Less 5 per cent.
Rebate of 20 cents for empty bags.

MORE INQUIRIES IMPROVE WASTE MATERIAL MARKETS

Montreal.

Dealers in scrap metals and waste materials report a slight improvement, inasmuch as inquiries are now coming to hand in better numbers. Although the actual dealing in these materials is still light, encouragement is lent, as it would appear that more interest at least is now being taken on the part of consumers. Quotations on some lines have been forced to an extremely low level, and dealers are convinced that they must quote still lower before actual business can be obtained. However, a gradual improvement in this direction is anticipated as soon as the first indication of activity becomes evident, as stocks are by no means heavy, notwithstanding the utter lack of demand in past months. Following the local nominal prices:

SCRAP—

Automobile Tires	0 50
Rubber Shoes	0 03
Yellow brass	0 05
Red brass	0 08¼
Light brass	0 03
Scrap zinc	0 03
Lead, heavy	0 04
Lead, tea	0 02
Light copper	0 08
Heavy copper	0 10
Wrought iron, R. Rd., No. 1 per gr. ton	10 00
Malleable scrap (ton)	8 00
Pipe scrap (ton)	6 55
Heavy melting steel	6 50 to 7 00
No. 2 busheling	3 00
Boiler plate	6 50
No. 1 machinery cast	20 00

TRADE IN COTTON WASTE OF AVERAGE VOLUME

Montreal.

There is little or no change in the cotton waste market, raw cotton now being fairly steady, following the recent fluctuations. Trade is described as being of average volume for this season, and quotations remain at revision of a few weeks ago. Prevailing prices are as follows:

COTTON WASTE—Cream polishing, 18c. per lb.
White—XXX extra, 16c.; XX grand, 15c., XLCR, 14c.; X Empire, 13c.; X press, 11½c.
Colored—Fancy, 13½c; Lion, 12c; Popular, 9c; Keen, 7½c.
Wool Packing—Arrow, 25c; Axle, 22c; Anvil, 18c.
Dominion Wipers—White cotton, 20c; colored cotton, 14c.

SOMEWHAT BETTER TONE IN BAR IRON AND STEEL

Montreal

Bar iron and steel is little changed on the local market, sales being limited, although there are indications of a heavier buying movement in the near future, and inquiries are still coming to hand in fair volume. Quotations remain at former figures with little changes. It was predicted some months ago that a buying movement in the spring would tend to stiffen the market, it being recognized at that time that prevailing price levels were well near the bottom in comparison with producers' costs. Since then revisions have been made, but in each case of minor proportions. Whether the increased activity, which is usual in the following weeks, will have a tendency to stiffen prices is yet hard to determine. Conditions at the mills also point in this direction, quotations of certain independent producers showing a recent slight advance. For the present however, following are local quotations.

IRON & STEEL—

Common bar iron, 100 lbs.	2 65
Refined iron	4 15
Iron finished machinery steel	2 70
Mild steel	2 65
Single reeled machinery steel	4 75
Band steel	2 65
Spring steel	4 25
Sleighshoe steel	2 65
Tire steel	2 85
Toe calk steel	3 55
Harrow tooth steel	2 80
Mining tooth steel, per lb.	0 21½
Black Diamond tool and cast steel	0 21½

NOTE—Refined iron is approximately $1.50 per 100 lbs. over base, but fluctuates owing to unsettled market.
Band steel in scroll bundles, 50c per 100 lbs. extra.

REPAIR WORK DEMANDS BOILER TUBES

Montreal

With the advancing season, an improvement in the volume of current business in boiler tubes is recorded. This, however, is only slight up to the present, but promises well for the coming weeks when increased business is usually apparent, developing from new factory construction. In this connection, some dealers offer the opinion that the movement will not be as active as in other years owing to the lack of larger construction work. The sale of these tubes for some time past has depended almost entirely upon repair work, and it is felt that the future movement will be largely dependent on this, rather than new work. Quotations remain unchanged at the following levels:

BOILER TUBES—	Seamless	Lapweld
1 inch	24 70	.....
1¼ inch	24 50	.....
1½ inch	24 00	.....
1¾ inch	26 00	26 00
2 inch	24 50	20 50
2¼ inch	27 75	23 50
2½ inch	32 50	24 50
3 inch	40 00	30 50
3½ inch	52 50	34 75
4 inch	65 00	44 00

SHIPMENTS OF TROUGH NOW BEING FORWARDED

Montreal.

There is now a noticeable improvement in the movement of eavestrough and conductor pipe, shipments being commenced to the dealer trade. Although current business is still light, distributors are well satisfied, claiming the opening of the season is fairly early. With stocks undoubtedly low in all sections, there is a continued improvement looked for, as the weather will soon permit the use of these products. Quotations are unchanged, and dealers look for little or no revision for some little time, as prevailing prices compare favorably with flat sheet levels, and a more active market will also assist towards a steady situation.

EAVESTROUGH—

O.G. Round and Half-round, per 100 ft., 8 in., $16.90; 10 in., $18.70; 12 in., $22.20; 15 in., $29.80; 18 in., $37.80.

O.G. Square bead, per 100 ft.: 8 in., $15.90; 10 in., $17.70; 12 in., $21.20; 15 in., $28.80; 6 in., $36.80.

Discount 70|10 per cent.

Conductor Pipe, Round, Plain and Corrugated, per 100 ft.: 2 in., $18.40; 3 in., $23.30; 4 in., $29.60; 5 in., $40.00; 6 in., $49.00.

Discount 70|10 per cent.

CONDUCTOR ELBOWS—

Plain or corrugated, price per doz.
2 in., $5.25; 3 in., $6.00; 4 in., $10.50; 5 in., $24.00; 6 in., $29.00.

Discount 60 per cent.

MODERATE MOVEMENT IN RANGE BOILERS

Montreal

Distributors of range boilers are little changed in their attitude towards selling, the newer list prices and discounts being quoted by some firms, while others are still maintaining the older net prices. The volume of business in range boilers is still limited, and for this reason less attention is paid to current quotations than would be the case if activity was more pronounced. Stocks in jobbers' hands are now comparatively light in most cases, and it is unlikely that dealers will replenish their stocks until the market is on a more stabilized basis. In the meantime purchases from the manufacturers are only made for immediate requirements. Following are list prices and discounts:

RANGE BOILERS:—

5	Gallon	$13.50
12	"	14.00
18	"	15.00
25	"	16.00
30	"	17.50
35	"	20.50
40	"	22.75
52	"	38.00
66	"	60.75
82	"	74.00
100	"	103.00
120	"	117.00
144	"	164.00
168	"	187.00
192	"	210.00

Discounts, Standard weight, 50 per cent.
Extra Heavy, 40 per cent.

IMPROVEMENT EXPECTED IN ENAMELLED WARE ORDERS

Montreal

Inquiries are now commencing to feature in enamelled ware market, and during the past week a noticeable improvement has been evident in this direction. There is a program of quite extensive building operations ahead, both locally and in surrounding territories. This reflects directly on enamelled ware sales, and dealers anticipate a continued improvement in sales as the season advances. Quotations are nominally unchanged at 33 1/3 per cent. off list prices for ordinary sized orders, with a further slight concession named for attractive sized inquiries.

Sinks, roll rim—

18 x 30	$23 00

Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$ 7 60	$ 7 40	$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70

Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide	51 40
Bath tubs, 5½ feet	57 10
Lavatories—	
17x19 in. Apron F139 or P4045	15 30
18x24 in. Apron F154 or P3845 or P3847	23 60
18x21 in. Apron F169 or P4205	17 60
17x19 in. Roll rim, F241 or P4345	12 60

Less 33 1-3 per cent.

PRICES ON CLOSET OUTFITS NOMINALLY UNCHANGED

Montreal

With renewed activity in building circles expected in the near future, a better buying movement will undoubtedly follow in closet outfits, as in enamelled ware in general. Sales up to the present have only been of a moderate character, although smaller construction work has required supplies all through the winter months. Quotations locally remain unchanged, while it is admitted that purchases of fair sized orders can obtain a price slightly lower. Following are local nominal quotations:

CLOSET OUTFITS—

Closet, standard outfit	27 50
Do., with post hinge seat	28 50
Do., white vitro, vitreous china or enameled iron, with wash-down bowl and oak or mahogany post hinge seat	30 50
Do., reversible trap bowl, less spud	12 75
Do., add for siphon jet bowl	7 00
Do., for ⅜ in. valve on supply pipe	1 50
Deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	10 50
Do., reversible trap bowl, less spud	11 50
Do., siphon jet bowl, less spud	19 00
Do., Richelieu bowl	9 00
Do., extra for spud	0 60
Do., oak, or oak-vitro tank, with fittings, less seat	14 25
Do., wood strip seat and cover	3 55
Do., post hinge seat and cover	4 25
Do., add for bar hinge	No extra
Do., white vitro, vitreous china, or enameled iron tank, with fittings, flush elbow and supplies less seat	18 50
Do., Vitreous China	20 00

BETTER BUYING MOVEMENT IN CORRUGATED SHEETS

Montreal.

Earlier spring trade in corrugated sheets is now commencing, and there is a fairly optimistic tone among dealers for future activities in the following months. With the first indications of a better buying movement appearing comparatively early, it is thought a good season for this product is forthcoming. This opinion is encouraged by reports of considerable building and repair work, especially of the smaller class, contemplated at a later date. There is now a more settled feeling in the market locally, and quotations are steadier than they have been in recent months. Although prices on the heavier gauges are reported as being unsettled in other markets, local distributors claim the movement of these heavier sheet is very slow, due to inactivity in manufacturing circles where the demand is almost entirely confined. Unchanged quotations are the following:

CORRUGATED SHEETS—	Per 100 sq. ft.
No. 28 gauge	6 50
No. 26 gauge	7 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50

Less 10 per cent.

Lighter than 24 gauge and wider than 27 inches, 75c a square extra.

NO FURTHER CHANGE IN COMPRESSION GOODS

Montreal.

There is no further change in the discounts on compression goods since the revision in certain lines two weeks ago. Prevailing prices, however, in many lines are considered purely nominal, with slightly lower quotations obtainable in some quarters. Trade in the various lines is still described as being of a limited nature, and mainly consisting of small sorting orders. Local discounts quoted are as follows:

COMPRESSION WORK—	
Compression work, standard	45%
Fuller work, standard	30%
Bath cocks, compression	35%
Basin cocks, Fuller No. 0	30%
Do., Nos. 1 and 2	30%
Flatway stop and waste cocks, standard.	54%
Roundway stop and waste cocks, std.	46%
Brass steam cocks, standard	43%
Radiator valves, standard	58%
Do., removable disc	58%
Globe, angle and check valves, std.	25%
Gate or straightway	25%
Emco Globe Valves	33%
Emco check valves	33%
Jenkins Globe, angle, check and swing check	19%
Jenkins gate or straight way	25%
Jenkins iron body, globe and angle	15%
Jenkins iron body gate	33%

SORTING TRADE CONTINUES IN PIPE FITTINGS

Montreal

Sorting orders continue to form the greater part of the movement in pipe fittings, dealers apparently still willing to take care of prevailing demand only. Quotations on the various lines are unchanged, with the following discounts still quoted:

PIPE FITTINGS—	Per Cent.
Cast iron fittings	30
Bushings, cast	32
Bushings, malleable	32
Flanges	40
Plugs	30
Flange unions	30
Malleable unions	47
Dart unions, black	33
Do., galvanized	13
Nipples, ⅛ to 4" close and short	50
Do., long	60
Do. 4½ to 8" close and short	40
Do., long	50
Couplings, 4" and under	30
Do., 4½" and larger	10

Pound Goods—	Blk.	Galv.
Class A	0 54	0 67
Class B	0 20	0 28
Class C	0 13	0 20

BETTER TRADE EXPECTED IN SOIL PIPE

Montreal.

Depending for the greater part on building construction, sales of soil pipe and fittings have been seasonably light for some time past, but increased activity is expected to soon develop, as a fairly extensive building program is promised as soon as the weather permits. Current quotations are remaining unchanged, at the last revision in discounts. The opinion in some quarters is expressed that revision in an upward

direction would not be surprising when a more active turn in trade becomes evident. Prevailing prices were quoted at a time when competition had to be met, and are not representative of productive costs. However, for the present there is no definite indication of such a revision, and following are present quotations:

SOIL PIPE—	
2 and 3 inch	47½%
4 inch	50%
5 and 6 inch	47½%
Fittings—	
2 to 6 inch	50-10%

SLIGHT IMPROVEMENT NOTED IN INGOT METALS

Montreal.

Changes in the ingot metal markets are not very great, although there is a slight tendency towards improvement, which it is hoped may be the commencement of a more staple market. The London market is largely dominated by fluctuations in exchange and the decline in Sterling tends toward improvement in prices.

TIN.—This metal continues irregular with little actual change in price, and there seems little chance of any great change at present. With such heavy stocks hanging over the market, consumption will have to increase before any market improvement is possible. Local market is steady at 34 cents.

COPPER.—Copper is firmer both in London and New York, and producers are firmer in their ideas at 13 cents for refinery. The London market has advanced about £3 per ton over the low mark, but this is partly due because of the decline in exchange. Locally there is little demand and the market is dull at 16¾ cents for electro, and 16¼ cents for casting.

SPELTER.—London continues to advance and this is the strongest metal there. East St. Louis is also firmer at $4.62½, and it would not be surprising to see the advance go sightly farther. Quotations locally remain at 7 cents.

LEAD.—There is no new feature to this metal, the market being quiet both in London and East St. Louis. Production is just about in line with consumption, and there seems little likelihood of much change in price. Locally this metal is a little quieter at 6¾ cents.

ANTIMONY.—Although present quotations are considered to be at a very low level, this metal does not produce much activity on the market. Stocks are still quite ample to take care of demand, and Chinese is quoted at 6¾ cents, high grade English at 7¾ cents.

ALUMINUM.—Still continuing very quiet, aluminum remains featureless, with quotations unchanged at 24 cents.

TORONTO MARKETS

TORONTO, March 14.—Another recession in prices on galvanized sheets, with lower quotations on copper and brass products, supply the feature changes in the current sanitary and heating material markets. The change in sheets and plates affects black and annealed, as well as galvanized, and is generally around twenty-five cents per cwt. Copper and brass rods, tubing and sheets, reflect the easier tone recently apparent in virgin metals. The manufacturers of light general purpose and engineers' wrenches have announced a decline in prices, and similar recessions are noted on the Wiss line of tinners' snips, and also everlasting blow-off valves. The scrap material markets still report quiet conditions, with the slight recovery in copper serving to stem the sagging movement previously evident on yellow scrap grades. The ingot metals continue to provide a variety of minor developments, with nothing of a startling nature having been recorded. Domestic prices are unchanged. With favorable weather conditions, the seasonal activity in construction work is generally away to a fair start, and with many sanitary and heating lines depending upon the volume of new erection for future trade, the impetus in building circles remains of particular interest.

EASIER PRICE LEVELS ON WISS TINNERS' SNIPS

Toronto

Quotations on the Wiss line of tinners' snips have again been revised, the latest change affording a reduction of approximately ten per cent. on the various sizes.

REVISED DISCOUNTS NOTED ON EVERLASTING BLOW-OFF VALVES

Toronto.

Everlasting blow-off valves have been reduced approximately ten per cent., through a revision in the discounts. This change applies to both screwed and flanged valves. The quotations on screwed are now 15 and 10 per cent off, compared with the previous discount of 5 and 10 per cent., while the new quotation on flanged is now 10 and 10, instead of merely 10 per cent. as before.

PRICE REDUCTIONS ON COPPER AND BRASS

Toronto

As outlined in recent market reports, the easier tendency in the basic copper markets has now resulted in similar price changes to correspondingly lower levels on copper and brass products. Such semi-finished lines as sheets, rods and tubing now record varying reductions between one and a half and two cents per lb. This change places quotations on a well-liquidated basis, and according to distributors is expected to reflect stimulated trade improvement during the ensuing months. Following are the revised price levels on these products:

BRASS—	
Sheets base, per lb.	0 21
Rods, base, per lb.	0 19
Tubing, base, per lb.	0 23
COPPER —	
Rods, base, per lb.	0 27
Soft sheets, plain, 1 oz. and heavier, lb.	0 28
Do., plain tinned, 16 oz. and heavier, per lb.	0 35
Do., polished and tinned, 16 oz. and heavier, lb.	0 40
Tubing	0 27

BETTER FEELING NOTED IN IRON AND STEEL

Toronto

There is a better feeling now generally in the iron and steel markets. Current local business is reported to have been fairly brisk in certain quarters, while the general undertone has registered improvement. Orders are not of a large character, but dealers report purchases on the domestic centres as noticeably more numerous. Inquiries also feature the prevailing attitude in larger volume. The prices recently in effect are being maintained, with some doubt being expressed in certain quarters as to what ultimate effect a coal strike in southern field would have upon the primary market quotations. The following price levels, however, represent the average now appearing on the local markets:

IRON AND STEEL—	
Mild steel bars, base	2 75
Mild steel bands, 3 16 in. base	3 25
Bar iron, base	2 75
Angle iron, base	2 85
Horseshoe iron	3 60
Tire steel	3 35
Spring steel	5 50
Crucible cast sheet steel	30 00
Mining drill steel	18 50
Cast tool steel, medium	18 00
Cast tool steel, high grade	30 00
Sleigh shoe steel	2 85
Norway iron	12 50
Toe caulk iron	4 00
Hoop steel	3 75

FAIR BUSINESS IN LEAD AND ZINC PRODUCTS

Toronto

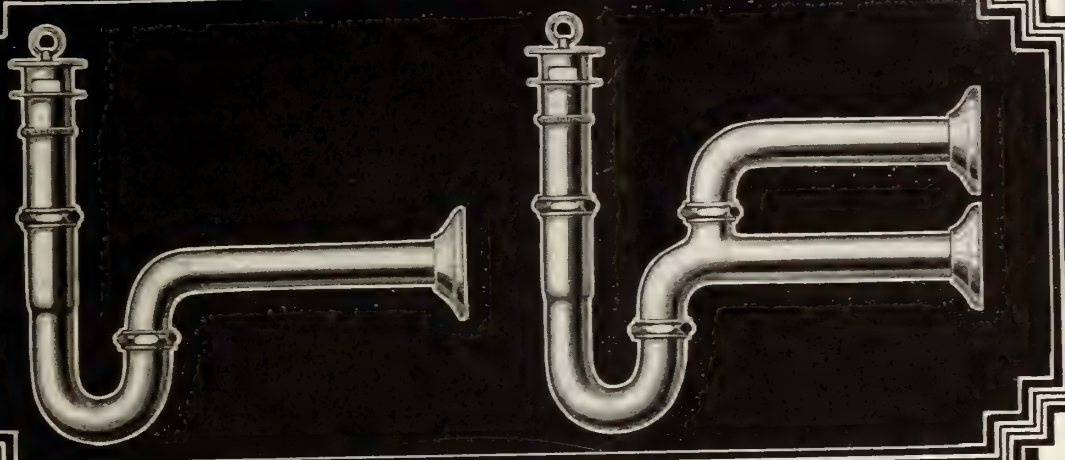
The market in lead and zinc products remains just about the same as in recent weeks with the exception that the easier tendency recently evident in certain primary metals, now shows signs of recovery.

LEAD AND ZINC GOODS—		
Lead, pipe, list, per lb.		0 12¼
Lead, waste pipe, list, per lb.		0 13½
Do., over 8 in., list, per lb.		0 14½
Lead pipe is subject to a discount of 10 per cent.		
Lead traps and bends.	10 per cent.	
Lead sheets, 4 to 6lbs., sq. ft. in rolls, lb.	0.09	
Cut sheets, ½c to ¾c lb. extra and cut sheets to size, 1c lb. extra.		
Solder wire, per lb.		0 22½
Do., commercial, lb.		0 22½
Do., strictly, lb.		0 21
Do., guaranteed, lb.		0 24
Do., wiping, lb.		0 21
Zinc sheets, per lb.	0 09	0 10

EXPECT BRISK ACTIVITY IN CEMENT MARKETS

Current business in cement is described as picking up a little, especially during the last week or two. The marked improvement in demand, however, is not generally looked for until the spring

Continued on page 30



It Pays to Give Your Customers the Best

Satisfied customers are your best advertisement—as they are ours. Your customers deserve the best that you can give them—in Brass Goods as well as in workmanship.

MUELLER Brass Goods are made with such infinite care and precision that no special fitting is necessary for their installation—thus saving you time that means profit on the job.

MUELLER ADJUSTABLE TRAPS

You can save time by installing *MUELLER* Adjustable Traps—either plain like A 2090 or vented like A 2094, illustrated above. *MUELLER* also makes "S" traps both plain and vented. All with cleanout plugs if desired.

MUELLER Traps, like every *MUELLER* product, are made from carefully selected materials by skilled artisans, who take pride in their work. The name *MUELLER* is a guarantee of excellence.

Write for detailed description and prices.
Mail orders given prompt attention.

H. MUELLER MFG. CO., LIMITED, SARNIA, ONT.

Water, Plumbing and Gas Brass Goods and Tools.

American Factory at Decatur, Illinois, U. S. A. Branches, New York and San Francisco

Mueller Metals Co., Port Huron, Mich., Makers of "Red Tip" Brass Rod; Brass and Copper Tubing; Forgings and Castings in Brass, Bronze and Aluminum; Die Castings in White Metal and Aluminum; also Screw Machined Products.

(Continued from page 28)

season is more mature. Prices are still steady at the revised levels announced in January. Production of cement is stated to be on a fairly high ratio of capacity, and distributors naturally anticipate a brisk season in construction activity generally. Following are current quotations:

CEMENT—

Car load lots.	Toronto.
Per barrel, delivered	3 70
Less car lots	
Per barrel, f.o.b. yard	4 30
Per barrel, delivered	4 50

Single bags, $1.15 each; 4 bags to barrel.
Extre charge of $1.50 per load on less than 24 bag lots.
Rebate of 20 cents for empty sacks.

ENAMELLED WARE ON ROAD TO IMPROVEMENT

With such sanitary materials as enamelled ware and similar lines principally depending upon the amount of new construction work for future trade activity, the outlook in these markets is undoubtedly on the road towards improvement. Already, commencement has been made in many districts upon a brisk program of building, which gives promise of being continued throughout the spring and summer months, if not into the late fall. Manufacturers and distributors of enamelled ware, therefore, look for a fairly good season, and while the current movement is described as moderate, improvement in this respect is generally expected. Quotations are unchanged at the following levels:

Enamelled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.	51 40
Do., 5½ ft.	57 10
Lavatories—	
17x10" Apron F139 or P4045	15 30
18x24" Apron F154 or P3845 or P3847	23 60
18x21" Apron F169 or P4205	17 60
18 x 21" Roll Rim, F197, F199 or P4655-6	15 40
17 x 19" Roll Rim, F241 or P4345	12 60
Sinks, Roll Rim, 16x24 in.	18 10
Do., 18 x 30 in.	23 00
Do., 20 x 30 in.	24 70

Sinks, Flat Rim—	3 only	2 only	1 only
16 x 24	$7 60	$7 70	$7 80
18 x 30	8 50	8 60	8 70
20 x 30	9 70	9 80	9 90

Above prices list, less 33 1-3 per cent.

All steel enamel baths, 4 and 4½ ft.	$14 00
Do., 5 ft.	15 00
Do., 5½ ft.	16 75

These quotations are net.

REDUCED PRICES ON ENGINEERS' WRENCHES

Toronto.

A reduction of approximately ten per cent. has been announced by the manufacturers on the Williams' line of light general purpose and also engineers' wrenches.

MORE UNIFORM PRICE ON STANDARD CLOSET

Local quotations on the standard closet combination are now more uniform at the level of $27.75. This price is now stated to have been generally adopted, distributors indicating that the previous easier price was a sign of weakness in the markets, and that with an improved demand and brighter outlook regarding future trade, conditions have been primarily strengthened. The current volume of trade is described as gradually getting better, with more interest in the shape of inquiries being received by distributors. It is naturally expected that any pronounced activity in construction circles will be reflected in the current demand for closet combinations and fixtures. Other quotations remain generally unchanged at the following levels:

CLOSET COMBINATIONS, low down	each
Closet, standard outfit, oak	27 75
Do., with post hinge seat	28 40
Do., mahogany Vitro or Pussyfoot, with mahogany post hinge seat and cover	30 25
Do., vitreous china, with oak post hinge seat and cover	30 75
Do., vitreous china, with mahogany post hinge seat and cover	31 00
Do., white Vitro or Pussyfoot, with maoak post hinge seat and cover	30 75
Do., white Vitro or Pussyfot, with mahogany post hinge, seat and cover	31 00
Do., enamelled iron tank with oak post hinge seat and cover	30 75
Do., enamelled iron tank with mahogany post hinge seat and cover	31 00
Additions or reductions to above	
Add for reverse trap bowl	1 25
Add for syphon jet bowl	7 00
For ⅜ in. valve on supply pipe	1 50
Deduct for supply pipe	0 70
Deduct for floor flange and bolts	0 80
CLOSET BOWLS—	
Washdown bowl, less spud	10 00
Reversible trap bowl, less spud	11 25
Syphon jet bowl, less spud	17 00
"Richelieu" bowl	10 50
CLOSET TANKS, low down	
Oak, Vitro or Pussyfoot tank with fittings, less seat	13 10
White Vitro or Pussyfoot tank with fittings, flush elbow and supply	15 25
Vitreous china tank with fittings, flush elbow and supply	18 00
Enamelled iron tank with fittings, flush elbow and supply	18 00
CLOSET SEATS—	
Oak wood strip seat and cover	3 25
Oak post hinge seat and cover	4 00
Mahogany finish post hinge seat and cover	4 25

DEMAND FAIRLY GOOD FOR RANGE BOILERS

Toronto.

The situation in the range boiler market is practically unchanged, with the current demand stated as fairly good. When compared with last year's records, distributors state that the present volume of trade is something to be thankful for, although it is nothing exceptional. Prices are unchanged, with the recent list quotations and discounts being generally adopted. The tendency in the raw material markets is difficult to gauge, and with these conditions evident, it is stated that a careful buying policy is required to restore the trade to a stabilized basis. Following is the current list:

RANGE BOILERS

Size.	List Price.
5-gallon	$13 50
12 to 15 gallon	14 00
18-gallon	15 00
25-gallon	16 50
30-gallon	17 50
35-gallon	20 50
40-gallon	22 75
52-gallon	38 00
66-gallon	60 75
82-gallon	74 00
100-gallon	103 00
120-gallon	117 00
144-gallon	164 00
168-gallon	187 00
192-gallon	210 00

Discounts, Standard weight, 50 per cent.
Extra heavy, 40 per cent.

QUIET SITUATION STILL PREVAILS IN SCRAP

Toronto.

Cast iron scrap still remains firm and the demand is fairly brisk. Steel scrap, however, is very quiet and shows no signs of immediate development. There is no change in prices, but those quoted are purely nominal.

The copper scrap market is exceedingly dull. There are large stocks held by dealers who will not sell at present values, and these stocks prevent dealers from purchasing other material which comes in the market. Other metals also have been dull, the tendency being to await developments in the virgin field. The rubber business is stagnant, and practically no sales have been made recently. Following are average local quotations for fairly large quantities:

SCRAP MATERIALS—

Scrap Iron		
Gross Tons—		
Heavy melting steel (Hamilton)	11 50	$12 00
Borings and turnings	2 00	3 00
Rerolling rails	10 50	11 50
Scrap pipe	6 00	7 00
No. 1 railroad wrought	10 25	11 25
Steel turnings (Hamilton)	6 50	7 50
Agricultural malleable	10 00	11 00
Railroad malleable	11 00	12 00
Net tons—		
No. 1 cast	15 75	16 75
Stove plate	11 50	12 00
Grate bars	10 50	11 00
Standard car wheels	13 50	14 00
Scrap Metals.		
Heavy copper and wire	10 50	11 00
Light copper	8 00	9 00
No. 1 composition	9 00	10 00
No. 1 comp. turnings	6 00	7 00
Light brass	3 00	3 50
Heavy yellow brass	5 50	6 00
Heavy lead	4 50	4 75
Tea lead	2 00	2 50
Scrap zinc	4 00	4 25
Scrap Rubber.		
Boots and shoes	2 50	2 75
Lumbermen's rubber boots	1 50	2 00
Auto tires	0 50	1 00
Solid tires	0 75	1 25

STEADIER PRICES NOTED ON COTTON WASTES

Toronto.

The situation in cotton wastes remains unchanged, with the present demand described as fairly good. Prices are holding fairly steady at the recently revised levels, and while some fluctuations have been apparent in primary cotton circles, yet these movements are stated as not of sufficient extent to reflect in cotton waste prices. The following levels prevail on the local markets:

MINOR DEVELOPMENTS IN INGOT MARKETS

Toronto.

Conditions in the current ingot metal markets continue to provide a variety of minor developments. Virgin copper has recovered to some extent from the recent depression. Tin continues a see-saw movement, with prices however, showing more reductions than increases, Prices on lead are steady, with the primary conditions continuing firm. Spelter is slightly firmer, with buying restricted owing to the heavy stocks on hand. Antimony is again a little weaker, with aluminum dull and unchanged.

COPPER.—Recent buying of copper on the primary markets has lately been a little more active, with the result that the sagging price movement has recovered to some extent. Southern reports indicate that the export trade to European countries has increased somewhat, a condition which has reflected in the general tone. The domestic markets contin-

(Continued on page 32)

PIPE FITTINGS

Domestic **Export**

"IMICO" Pipe Fittings

are known throughout the British Empire
for the quality they possess

Malleable Fittings

of our brand mean fittings made of refined air furnace Malleable Iron, properly annealed and threaded to gauge.

Cast Iron Fittings

stamped with our trade mark denote fittings made of the highest quality of Cast Iron, reamed and tapped with perfect threads.

International Malleable Iron Company, Limited

GUELPH, ONTARIO

Representatives:

Vancouver, B.C.—Messrs. Ames Bros., 325 Howe St.
Winnipeg, Man.—Messrs. Harry F. Moulden & Son, Confederation Life Bldg.
St. John, N.B.—Messrs. H. G. Rogers, Limited, 147 Prince William St.
Halifax—Mr. Geo. D. Hatfield, Bedford Chambers.

TORONTO MARKETS

(Continued from page 30)

ue quiet, with both consumers and distributors keeping in close touch with the situation. The average local price of 17½ cents still remains.

TIN.—The tin markets have seemed to continue in a regular see-saw movement with varying fluctuations recorded almost day by day. The fundamental situation, however, shows that the declines have been more drastic than the advances, as prices in the primary stage are now lower than at the corresponding period last month. Local quotations continued around 35½ cents.

LEAD.—This market is practically unchanged, and a firm condition continues in evidence. There is very little new to record, with the general situation unusually steady. Prices are about the same, with the local level at $6.75.

SPELTER.—The spelter market is reported steadier, but buying is still on a somewhat limited scale. Consumers are not purchasing very freely, although the market cannot be described as dull. The conservative attitude is taken as indicating the slowness of recovery in the demand for various manufactured products. Local quotations continue at $7.00.

ANTIMONY.—The market for prompt is quoted a little easier on account of recent fresh supplies. There has been a slightly better demand, but consumers' stocks are generally described as heavy. Quotations on the local market remain unchanged at 8 and 9 cents.

ALUMINUM.—A variety of opinion is again evident with regard to the price trend of aluminum in the near future. Some improvement in demand is looked for in certain quarters, with a consequent slight firming up in quotations. Prevailing prices however, continue unchanged, with no fresh developments recorded. The local quotations is still in the neighborhood of 27 cents, with some easier levels having been noted.

WINNIPEG MARKETS

WINNIPEG, March 14.—The number of price developments on the current sanitary and heating markets has recently been smaller than during the early months of the year, and this is generally taken as an indication that quotations on many plumbing and steam-fitting lines are now getting down to a substantial basis for future trade, representing a fair share of liquidation in comparison with prevailing replacement costs. The movement of Spring goods, usually evident with the revival of building activity at this season of the year, is now commencing, and while present orders are small, yet jobbers generally report business on the road to improvement and of a fairly satisfactory volume.

BUILDING IS STIMULANT TO CURRENT TRADE

Winnipeg.

The movement of plumbing and steam fittings materials is now commencing to register the seasonal Spring activity. Much stimulation has been given to an early start in this direction by the more or less extensive program planned in building circles generally. While the number of commitments is described as fairly satisfactory, yet the size of orders is generally of a moderate nature. However, the general feeling in the trade is that an improvement has now commenced, and with repeat orders anticipated owing to the fact that dealers' stocks are generally in a low condition, a fairly creditable volume of activity is expected to materialize, and a total which will compare favorably with the records of previous seasons.

SPASMODIC CONDITIONS IN SHEET MARKKETS

Winnipeg.

The market in sheets and plates is described as spasmodic, with current trade of a moderate nature. Prices are fairly steady in the domestic markets, distributors stating that there have been no exceptional or attractive orders appearing which might influence price shading. However, some easier levels are recorded in other quarters, and it is generally expected that this tendency will be reflected in the local quotations in the near future. Primary markets report that the reductions are only slight, and do not indicate any sign of weakness. On the other hand, recent reports are optimistic and herald a more or less general return of activity, both as regards production and distribution.

STEEL SHEETS, BLACK—	
10 gauge	5 70
12 gauge	5 70
14 gauge	5 80
16 gauge	5 90
18-20 gauge	6 30
22-24 gauge	6 35
26 gauge	6 40
28 gauge	6 65
IRON GALVANIZED—	
Premier; Apollo and "Fleur de iLs"	
10¾ oz. or 28 Eng.	8 20
28 Am. or 26 Eng.	7 80
26 Am. or 24 Eng.	7 20
24	7 05
22	7 05
18 and 20	6 90
16	6 75

TRADE IN BUILDING MATERIAL HELPED BY SEASONABLE WEATHER

Winnipeg.

Current trade in many lines, such as eavestrough, conductor pipe, bar iron and steel, corrugated sheets, closet outfits and fixtures, enamelled ware products, and radiators, which depend upon seasonable weather conditions is still moderately quiet. An improvement in this direction, however, is generally expected with the advent of Spring weather during the ensuing weeks. Similar circumstances surround practically all building materials, as well as many other seasonal lines. With a fairly extensive construction program outlined during the coming months, activity in these products is expected to reach more satisfactory proportions.

SOUTHERN PIPE MARKETS RECORD EASIER TONE

Winnipeg.

While there has been no change in the current quotations on wrought piping, yet an easier tendency is reported from southern primary markets, where price shading between opposing interests has been recorded. This condition, however, has not affected the domestic centres, the point of interest being as to the future trend of price developments. It is claimed that producers are not making profit at present levels, and it is difficult to see where additional recession can be made. On the other hand, the domestic tendency has usually followed and revision on the southern markets, and for that reason alone, the current developments are outlined.

BLACK PIPE

F.O.B.	Winnipeg	Calgary, Edmonton, Lethbridge & Medicine Hat.	Saskatoon.	Regina.	Brandon.
LIST NO. 54.					
⅛	$ 6 25	$ 0 28	$ 0 20	$ 0 17	$ 0 11
¼	4 52	0 47	0 34	0 30	0 19
⅜	4 67	0 62	0 45	0 40	0 26
½	5 95	0 94	0 67	0 59	0 38
¾	7 20	1 25	0 90	0 79	0 51
1	10 04	1 85	1 34	1 17	0 75
1¼	13 60	2 51	1 80	1 57	1 00
1½	16 26	3 01	2 15	1 88	1 21
2	21 88	4 04	2 88	2 52	1 62
2½	34 61	6 40	4 60	4 02	2 68
3	45 26	8 38	6 03	5 28	3 39
3½	58 88	10 12	7 20	6 30	4 05
4	69 75	11 97	8 53	7 46	4 80
4½	81 22	13 91	10 04	8 75	5 62
5	94 73	16 30	11 60	10 15	6 52
6	122 86	21 10	15 00	13 14	8 44
7	181 18	26 14	18 62	16 28	10 46
8L	190 38	27 50	20 00	17 50	11 25
9	267 05	37 60	26 96	23 59	15 16
10L	248 00	35 20	25 60	22 40	14 40

GALVANIZED PIPE

⅛	$ 8 50	$ 0 28	$ 0 20	$ 0 17	$ 0 11
¼	7 04	0 47	0 34	0 30	0 19
⅜	7 09	0 62	0 45	0 40	0 26
½	7 89	0 94	0 67	0 59	0 38
¾	9 41	1 25	0 90	0 79	0 51
1	13 50	1 85	1 34	1 17	0 75
1¼	18 29	2 51	1 80	1 57	1 00
1½	21 87	3 01	2 15	1 88	1 21
2	29 43	4 04	2 88	2 52	1 62
2½	46 54	6 40	4 60	4 02	2 68
3	60 86	8 38	6 03	5 28	3 39
3½	77 65	10 12	7 20	6 30	4 05
4	92 00	11 97	8 53	7 46	4 80
4½	105 60	13 91	10 04	8 75	5 62
5	123 15	16 30	11 60	10 15	6 52
6	159 70	21 10	15 00	13 14	8 44
7		26 14	18 62	16 28	10 45
8		27 50	20 00	17 50	11 22

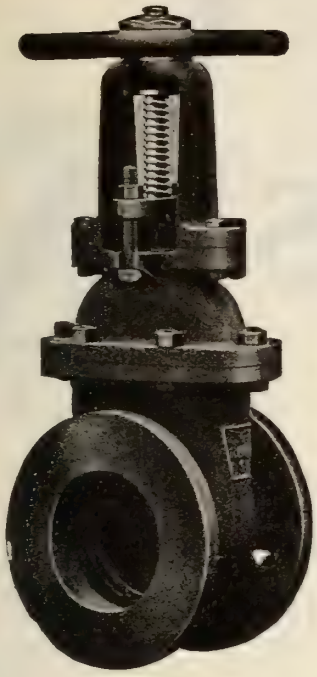
RUDIMENTS OF PATTERN MAKING

(Continued from page 17)

ners just established and draw the diagonal lines. Where they cross in point X, set dividers to any radius and strike an arc as a-b.

Now change a radius to something larger, and using the new points a and b as centers, strike and cross arcs as in point c.

After this draw center line through points c-X and from this center line you can set your dividers and describe arcs in any place you wish and they should be tangent to the given lines.



Kerr Valves

Give

Character to Work

They reflect credit on the man who specifies them, the man who installs them, and they give complete satisfaction to the men who use them.

Take the Kerr Gate Valve illustrated, for instance: It is well designed; strong and sturdily made; note the compact and narrow face to face dimensions; observe the accessibility of the stuffing box; the strong, generous flanges and the properly spaced bolting.

KERR VALVES ARE GOOD VALVES

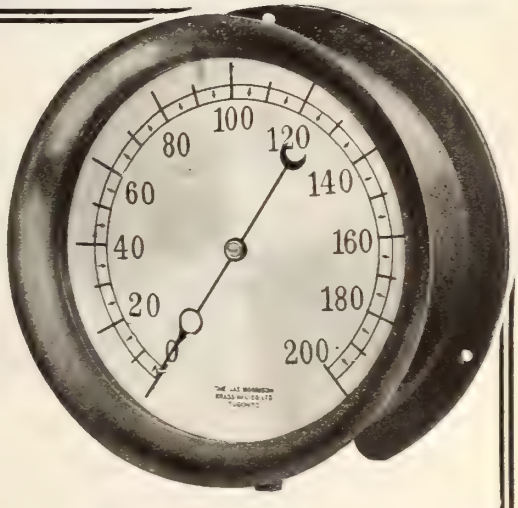
Catalogue No. 5 on application.

The Kerr Engine Co., Limited

Valve Manufacturers - Walkerville, Canada

Sales Built on Confidence

Morrison Gauges



include gauges for every conceivable purpose—for indicating or recording:—pressure, temperature, altitude, revolutions, etc.

These well-known, reliable gauges sell well because they are regarded by mechanical men as standard.

There is hardly a requirement for gauges that you cannot supply with Morrison Gauges. With the Morrison line you can make a sale out of inquiries.

James Morrison Brass Mfg. Co., Ltd.

93-97 Adelaide Street West, Toronto

Write to-day for catalogue of the reliable Morrison products. It will pay you to stock and sell the famous Morrison line.

Markets

Sanitary Engineer Marketing Reports are eagerly looked for by progressive plumbing and heating Engineers of Canada.

A thorough knowledge of prevailing prices and tendencies in the trade is an absolute necessity for the conduct of any business in these days of frequent price fluctuations.

Sanitary Engineer Marketing Reports are compiled at considerable expense. We are determined to keep them reliable, complete, and up-to-date.

Sanitary Engineer
Plumber and Steamfitter of Canada

No. 1 "C & H" Blow Torch

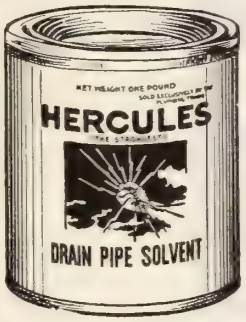
A handy size Torch, powerful blue flame. No pump to get out of order. Generates its own pressure. Safe, reliable and economical. Supplied with wood handle as shown or with reed handle.

"C & H" Cone Top Tank Bulbs

Specially designed for Canadian pattern syphons. Heavy vulcanized reinforced tops. Bottoms soft and pliable. Spuds will not pull out. "C. & H." bulbs are guaranteed to give satisfaction.

"C & H" Pipe Joint Cement

is made according to special formula, goes three times as far as Red lead. Does not bake or flake off. Sets at once, joints easily separated after long service.



HERCULES Drain Pipe Solvent

Positively (No Fumes Non Explosive

quickly clears clogged sinks, baths, closets, drains, etc. Will not injure piping but certainly "Hercules" clears stoppages.

W. H. Cunningham & Hill, Limited

269 West Richmond Street, Toronto

We have a Complete Stock of Plumbing and Heating Specialties

There is Greater Radiation to

VULCAN

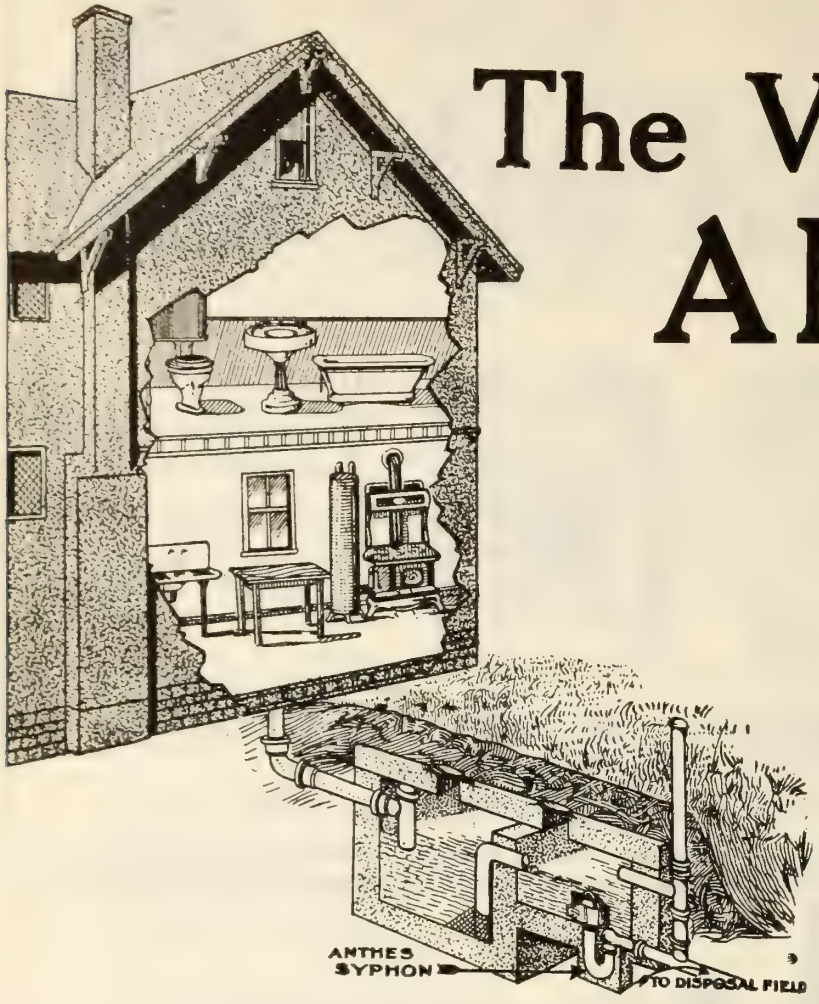
Pure Air Furnaces

With a greater total area of radiation surface, it is easy to see that they must give off more heat in proportion. They are extremely simple and easy to operate and easy and profitable to install.

The Vulcan is strong and durably built of heavy metal and will give long, satisfactory years of service.

The Vulcan Co., Limited

London : Canada



The Very Heart ANTHES

The foundation of success for the sewage disposal system lies in a satisfactory and efficient syphon.

The rural plumber who appreciates the great profit-making opportunity in this line of work will want his job to make good. Two factors will contribute especially to this: the use of the reliable Anthes Syphon for one and the use of our free blue prints and specifications for the other.

Anthes

Toronto

Manufacturers of Cast

of the System is the SYPHON

Anthes Syphons operate according to purely natural laws. There are no moving parts to stick or cause trouble.

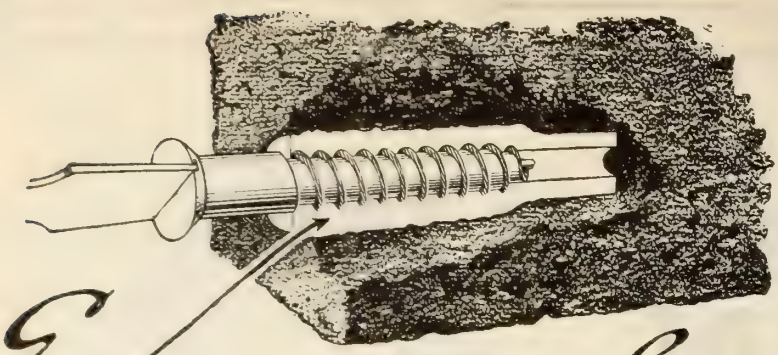
Anthes Syphons are seamless and made in one piece. Their construction makes them very easy and simple to install. We also make superior cast iron Soil Pipe and Fittings. When you specify, specify Anthes Soil Pipe and Fittings.

Foundry

Limited

Winnipeg

Iron Soil Pipe And Fittings



Expansion means Grip!

RAWLPLUGS

The screw or the material will give way before the Rawlplug.

Rawlplugs are plugs that may be inserted into concrete, brick, plaster, slate, metal, stone, tile, marble, glass or hard rubber.

They are manufactured tubes of fibre strands, stiffened lengthwise. The strands are so interwoven and cemented as to withstand weather and wet. They will not decay. Rawlplugs expand as the screw is turned in, becoming an integral part of the material in which they are inserted.

Samples and price list on request.

Inventions Limited

Sole agents for The Rawlplug Co. of Canada, 128 Bleury Street, Montreal.

Agents for U.S.A., Rawlplug Co., 461 8th Ave., New York.

PERFECTION HANGERS

Easily Adjusted to Any Pitch.

Extension to 10 Ft.

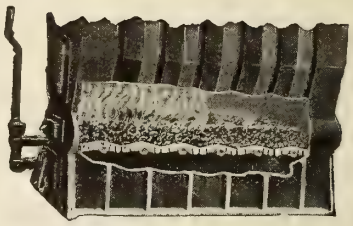
All Goods conform with custom regulations. When in New York call at our office and warehouse, 234 Water St., and see our complete line.

Write now for our catalogue. Beaton and Cadwell air valves and other specialties are rapidly attaining the same popularity that years of sterling service have won for our floor and ceiling plates.

The Beaton & Cadwell Mfg. Company

New Britain, Conn.

Eastern Agents:	Western Agents:
J. R. Devereaux & Co.	A. E. Hinds & Co.
New Birks Bldg.	Galt Building
Montreal	Winnipeg



Ever see two boilers in one?

That's what Burnham Boilers are. Great big man's size heat givers for cold bleak days. Or on uncertain spring days they run at half time just as economically as when at full blast. The grates shake half at a time, so you could run half the boiler at a time.

Write us for complete information

Lord & Burnham Co. Limited of Canada

(Boiler Department)

Royal Bank Bldg., Toronto

Factory—St. Catharines, Ontario

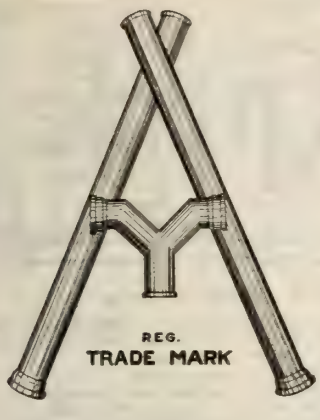
Burnham Cosy Comfort Heat BB

Allpriser—
Your Price Clerk

Write for further information

K. B. ALLISON

4 Irwin Ave. - Toronto, Ont.



PLUMBERS WHO USE OUR

TESTED Soil Pipe

SAY IT SAVES TROUBLE

Manufactured by

FORWELL FOUNDRY, LTD.

KITCHENER, ONT.

Wade

B. Fig. 27—
Water Jacket
Grease Basin,
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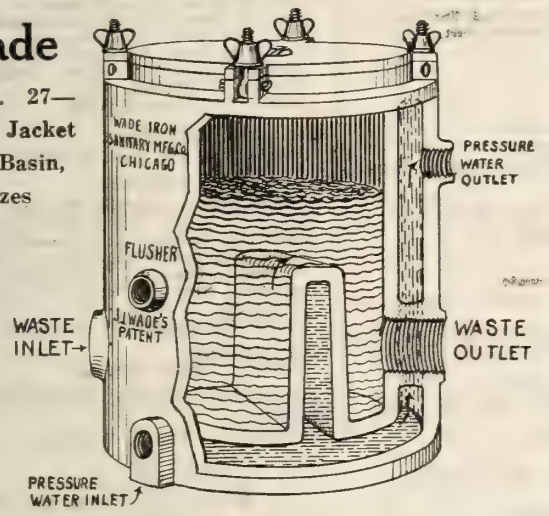

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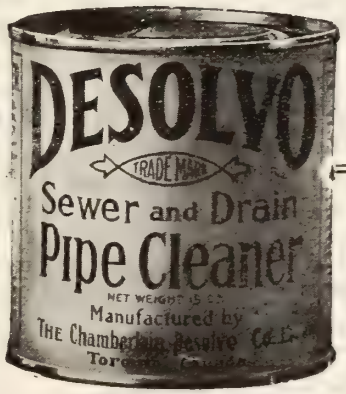

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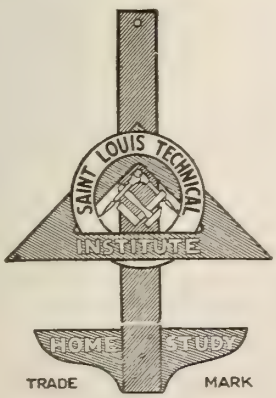

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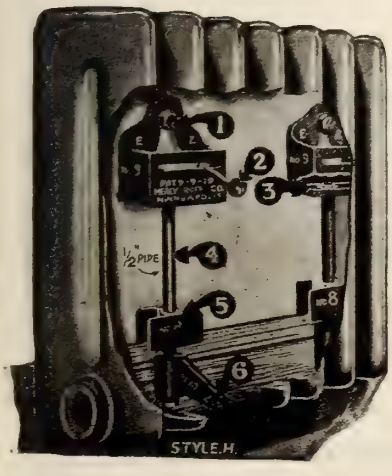

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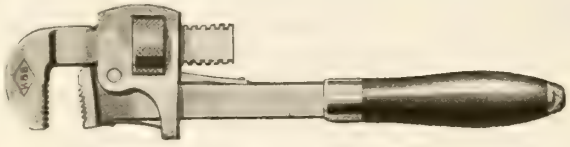

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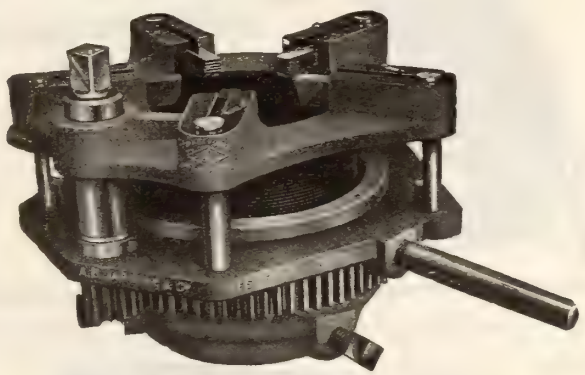

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Operating Canadian Tube and Iron Co., Limited

Works at Lachine Canal, Montreal

NO. 1 "TWEED" Sanitary Closet with mahogany finished seat and lid with nickel-plated hinges. The special "Tweed" chemical used in connection with the closet, destroys every trace of odor. Easily installed, as no plumbing required.

Out-of-Town Business

Only those who have to live the year around in a locality without city conveniences realize the hardships involved, and it is among these that you can do a profitable business with the

"TWEED" SANITARY CLOSET

A city convenience at a fraction of the cost—anybody can afford one. Compactly packed for shipment and easily handled.

We also make an attractive line of "Tweed" Baths and other home conveniences.

Write for price lists and literature

The Steel Trough & Machine Co., Ltd.

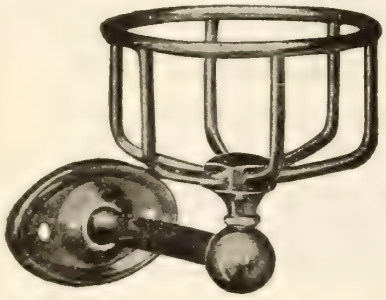
TWEED, ONT., CANADA

LOUIS A. PAYETTE.

304 University St., Montreal

Quebec and Eastern Representative

THE GENDRON MFG. CO. Ltd., TORONTO



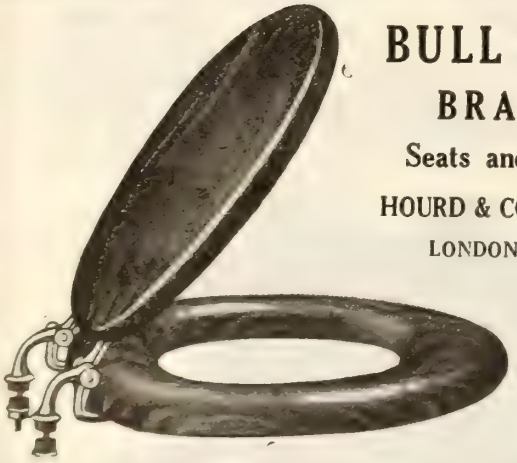
Makers of

Towel Bars
Soap Dishes
Paper Holders
Glass Shelves
Mirrors

THE GENDRON MFG. CO. Ltd., TORONTO

Tapped Closet Bend

Easier to attach
More permanent
Cost less



BULL DOG BRAND

Seats and Tanks

HOURD & CO., Limited

LONDON, CAN.

Easily Cleaned

The APEX Closet Bowl has special features that place it in a class by itself.

Clean-out device located at head of trap. Any obstruction can be located and removed in five minutes without disconnecting from floor or water. Cannot overflow. Silent in operation.

Find out all about the APEX before installing another closet bowl. Canada Patents for sale.

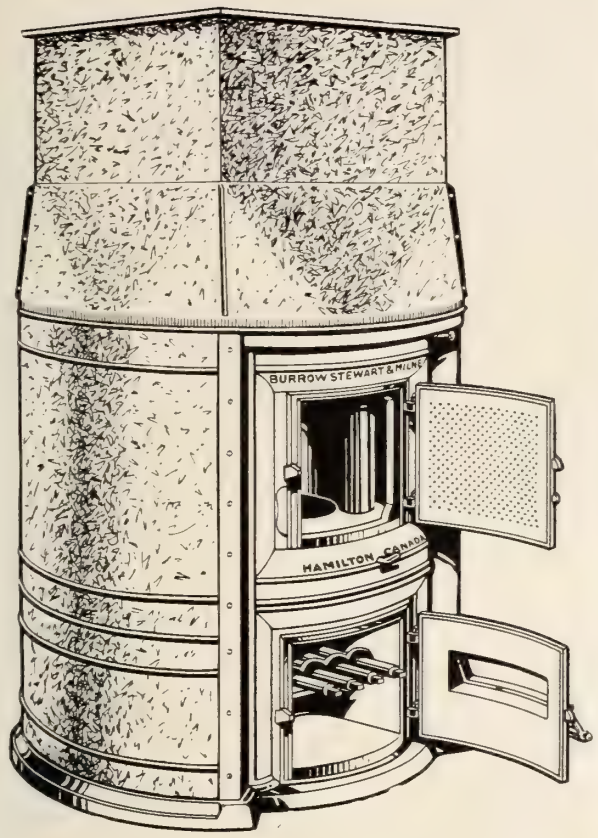
THE APEX SUPPLY CO. 203 E STATE ST. TRENTON N.J.

THE TRADE
Is Respectfully Cautioned
to specify

RIVETED RANGE BOILERS

Made by the old reliable

TORONTO HARDWARE MFG. CO., LIMITED



JEWEL

The Name of a Service of comfortable, genial warmth for households as well as the name of

A Pipeless Furnace Second to None

When you sell the Jewel the selling points in detail will interest and convince your prospects, making it comparatively easy to close the sales.

The paramount idea—the one to keep before your prospects all the time—is the service and satisfaction that they receive from the Jewel.

Your customer's ideal is a warm, comfortable house that he can keep at 68° of temperature no matter what the outside weather may be.

Keep it before them, that where the Jewel is installed, it is warm enough to sit and sew comfortably, warm enough for the canary to sing, and the geranium to bloom in a sunny window sill.

The Points That Close Sales

Founded first, on an incomparable design, then made from unexcelled material, and finally constructed by selected, skilled workmen, who are supervised by experts, it is small wonder that the Jewel leads the pipeless furnace field.

Manufactured by

The Burrow, Stewart & Milne Co.
LIMITED
Hamilton - Ontario

Only a VITRO Tank Can Give VITRO Profits and Satisfaction

THE material alone hasn't made the VitrO Tank what it is to the public and the plumbers of Canada.

In fact, a lot of the folks who know VitrO as the name of "the high-class tank," don't even know what it's made of.

They expect a square deal from a VitrO Tank, just as the plumber does, because VitrO Tanks have taught them to expect it.

They expect better service—because the VitrO has always given better service. So that VitrO is not only the name of a material from which a tank is made. It means:

—The **quality** of that material
—the **way** that tank is made
—the sort of **fittings** inside the tank
—the **service** those fittings give
—the **satisfaction** the tank brings to the buyer
—the clear **profit** it brings to the plumber.

The tank that has made thousands of dollars for Canadian plumbers, and won the confidence of Canadian people, is the VitrO—

And the VitrO is made exclusively, in Canada, by

GALT BRASS COMPANY, LIMITED

GALT - - CANADA

VITRO
NO TROUBLE
TANK

SIXTEENTH ANNUAL SPRING NUMBER

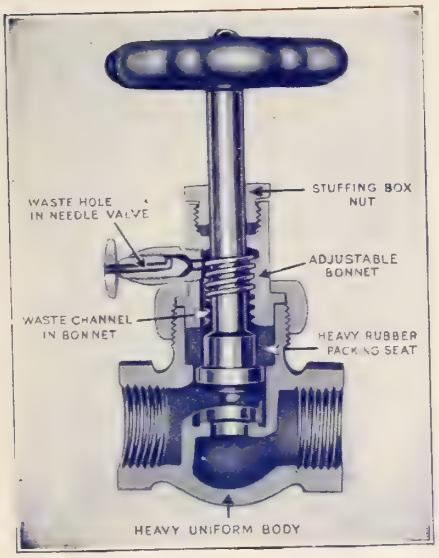
Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XVI. PUBLICATION OFFICE, TORONTO, APRIL 1, 1922 No. 7

EMPIRE

An Adaptable Fixture



A-332

Our "Emco" A332 Stop and Waste Cock possesses certain features that make it an exceptional and desirable fitting.

It can be used either as a straight Stop Cock or a Stop and Waste Cock.

The adjustable bonnet allows the needle waste valve to be placed in proper position for catching waste water. The needle valve may be shut off independently when turning water on or off—this prevents a rush of water out of the waste tube.

Leading jobbers throughout the country handle "Emco" plumbing supplies and sanitary fixtures.

"THE DOG AND THE BULL FOR A QUALITY PULL"

Empire Brass Mfg. Co. Limited

LONDON and TORONTO, CANADA

GOOD REASONS WHY 1922 MONCRIEF DEALERS WILL MAKE NICE PROFITS WITH THE

ECONOMICAL
--AND--
EVERLASTING

MONCRIEF FURNACE

A BETTER FURNACE WITH NO REGRETS

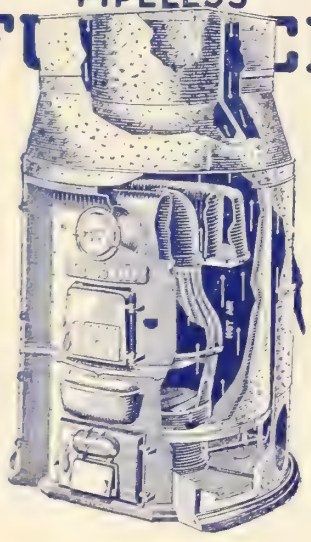
Your prospects can understand that an ALL CAST, extra heavy furnace of highest quality grey iron, deep cup joints, one piece feed section, long fire travel and large radiating surface will give them a June temperature in zero weather as long as they live.

They can see that the wide, roomy casings give them a greater volume of warmed air—not scorched, dusty, hot air.

Every part assembled and fitted before leaving factory—quick and easy to install. Enthusiastically recommended.

Backed up by quality, service and snappy advertising. No worry over your sales or reputation. Get ALL the facts.

MONCRIEF PIPELESS FURNACE



This famous furnace is backed up with a STRONG and COMPLETE line of dealers' selling helps. Get our dealers' ad. sheet with ads. of real selling power.

Cuts of complete advertisements furnished free and **we will pay fifty per cent. of your advertising cost.**

Get to know more about the MONCRIEF furnace and the exceptional sales plan for dealers. **You'll want the MONCRIEF agency then.** Write to-day.

Moncrief

PIPE, PIPELESS, THREE PIPE AND MAJESTIC MONCRIEF
FOR ALL WARM AIR HEATING NEEDS

Made in Canada by

The MONCRIEF FURNACE & MANUFACTURING Co. Ltd.

GUELPH -:- ONTARIO

*No. 8

HANDLING CONDENSATE

Dunham Return Trap:

The problems encountered in heating of different sizes and types of buildings are so varied that the apparatus used for one condition is not suitable where a wider range of pressures are required or imposed.

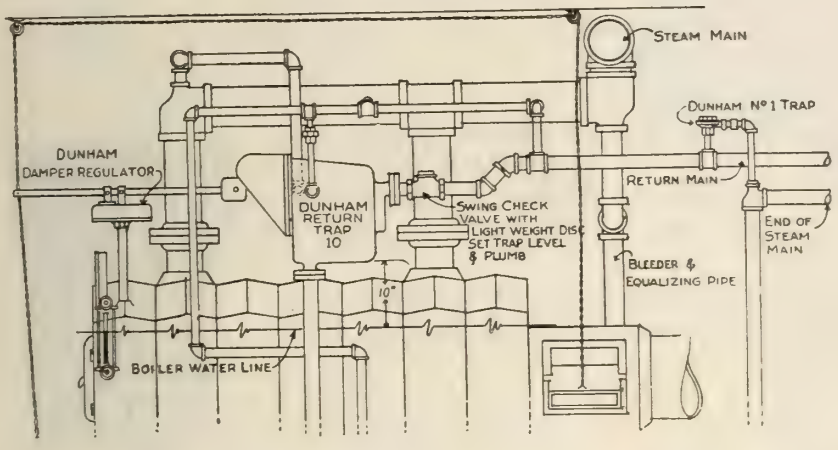
Buildings of moderate size, such as apartments, schools, office buildings, etc., very often have janitors or firemen that have other duties besides the care of the heating plant. As a rule, the pressure is permitted to vary over a considerable range.

The Dunham Return Trap is a very necessary addition to such an installation.

It should always be installed ***level*** and ***plumb*** and with at least ten (10) inches between bottom of trap body and waterline of boiler—greater height if possible.

The trap is especially built for low pressure heating service, with liberal piping connections, and with no obstruction to the free venting of the air from the radiators.

Its principle of operation is: to fill with condensate, then the steam valve opens and air valve closes, equalizing pressure between boiler and trap so that condensate flows back to boiler by its own weight. As trap empties, the steam valve closes and air valve opens again, permitting free vent of all air from the radiators as condensate accumulates.



Built in three sizes, capacities 3,500 to 10,000 square feet of direct radiation.

Complete data on request.

* This is the eighth of a series of talks on steam heating, appearing monthly in this magazine.

You will find them all very interesting and of help in your daily work.

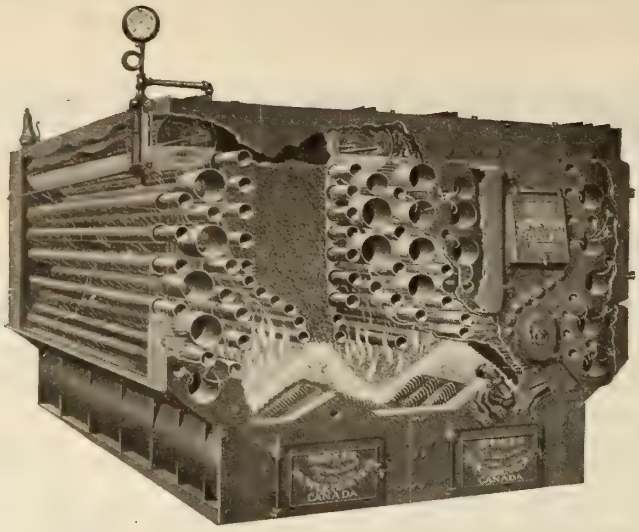
The DUNHAM REG. TRADE-MARK HEATING SERVICE

Made in Canada

C. A. DUNHAM COMPANY, Limited, Toronto, Ontario

Halifax Vancouver Winnipeg Ottawa Montreal Calgary

London : 233-A Regent Street, W. 1.

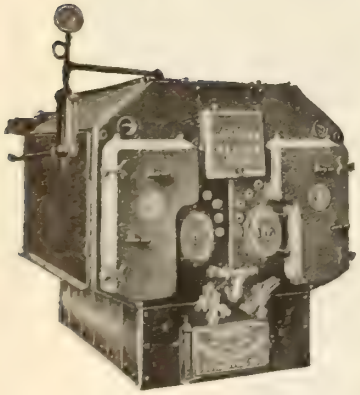


You Can't Get Away from the fact that "Spencer Heaters are Great"

For efficiently heating any type of building these boilers will be found the kind that you have been looking for.

Easy to run and require little attention. Burn various kinds of coal (hard or soft) Coke, Fuel Oil, or Gas in a smokeless manner, and with a constant service.

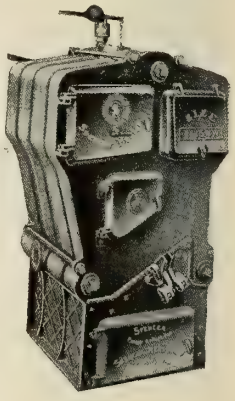
The magazine holds a 24-hour supply, feeds uniformly, only as fast as coal is consumed, giving exact control. They have maintained temperatures 48 hours in the coldest weather without attention.



Steam
27 sizes, 375 to 10,000 sq. ft.

We offer many sizes and a wide variety. Send us your name and address and we will furnish further particulars.

If you don't know the facts concerning the Spencer, "It's time you did."



Hot Water—10 sizes,
600 to 3,600 sq. ft.

Spencer Heater Company of Canada, Limited

68 Adelaide Street East - Toronto, Ontario

WINNIPEG, MAN.
185 Portage Ave., E.

PLANT
Penetang, Ont.

MONTREAL, QUE.
71 St. James Street

What Greater Recommendation can be desired of the

Pease Pipeless FURNACE

Opinions expressed by others regarding the Pease **"Made-in-Canada" Pipeless Furnaces:**

ALLANDALE, Ont. (Mr. R. R. Bothwell):
"It has given entire satisfaction."

BEAMSVILLE, Ont. (Mr. Frank Eckhart):
"We are quite satisfied."

BELMONT, Ont. (Mr. W. C. Barons):
"Has given me good service. It is O. K."

BONARLAW, Ont. (Board of Education):
"Is giving perfect satisfaction in every way. Would advise any school or suitable building to install one."

BRITTON, Ont. (Mr. T. J. Sproule):
"We have a large house but this furnace heats it well; and the upper floor beyond our expectations."

BRUSSELS, Ont. (Mr. Fred Cardiff):
"We like the Pease Pipeless Furnace all right."

BRUSSELS, Ont. (Mr. Arthur Kerr):
"Has worked perfectly satisfactory and it was very easy on fuel. We only burned three tons of coal from the middle of November to the first of April."

CHIPPAWA, Ont. (Mr. T. D. Greenwood):
"Am more than pleased. Propose putting another one in."

COALHURST, Alta. (Mr. L. G. Thomas):
"Are quite pleased with same and it has given entire satisfaction."

COOKSVILLE, Ont. (Mr. G. H. Crump):
"Has given us more comfort and satisfaction than we expected."

FERGUS, Ont. (Mr. F. W. Ham):
"Can recommend this furnace as being superior to the old style; doing away with pipes all over cellar."

Still some good territory open for live dealers
Write to-day.

PEASE FOUNDRY COMPANY. LIMITED

TORONTO - ONTARIO

Makes Warm Friends Everywhere

Every "DAISY" Installation is an Installation of merit.

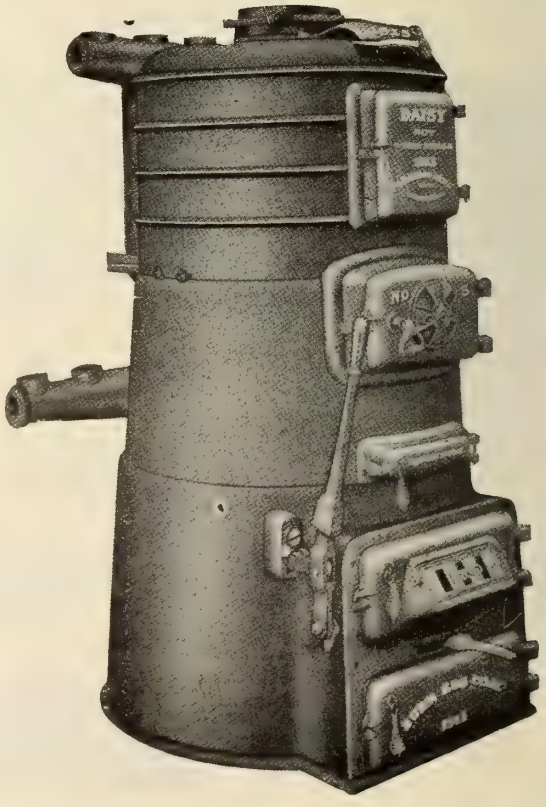
Daisy Boilers are built to give satisfaction—built to give long service under the most trying conditions.

When you consider that over 60,000 Daisy Boilers are in use, you can't help but realize that the Daisy does, in every truth, deliver the goods.

And don't forget that every day the Daisy is on the job. It is making warm friends for you that will result in more business for you.

Because of their simplicity of design, economy, comfort and ease of operation, Daisys have excellent talking points that make them easy to sell.

Become a Daisy booster.



Warden King
LIMITED

Montreal, Quebec

Branch Office: 136 Simcoe St., Toronto

YOUR OPPORTUNITY

No. 125—8-ft. Steel Brake for 18 G.
Install a B.B. Steel Brake and make up your troughing, hot air pipes, gutters, etc., in your spare time

Price $206.00 F.O.B. Factory, Hamilton

The Brown, Boggs Company, Limited

HAMILTON - CANADA

Manufacturers of
TINSMITHS' and HEAVY SHEET METAL WORKING MACHINERY,
CANNING and EVAPORATING MACHINERY

There is Greater Radiation to

VULCAN

Pure Air Furnaces

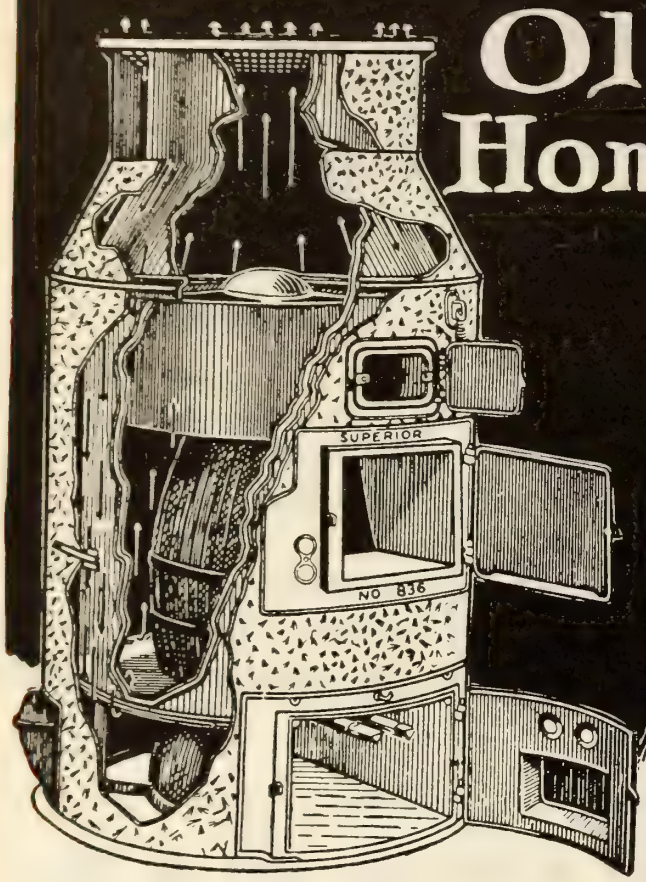
With a greater total area of radiation surface, it is easy to see that they must give off more heat in proportion. They are extremely simple and easy to operate and easy and profitable to install.

The Vulcan is strong and durably built of heavy metal and will give long, satisfactory years of service.

The Vulcan Co., Limited

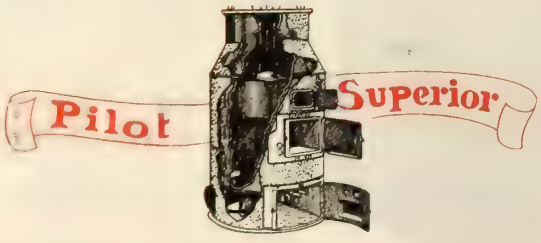
London : Canada

Put a Pilot Superior Pipeless Furnace in the Old Home



The Pilot is—

Easily installed.
Gives an abundance of heat.
Effects a saving of twenty-five per cent. in fuel.
A more sanitary method of heating.
A very profitable line for the dealer.



"Superior" in Name and Operating Efficiency is the Pilot

NOW is the time to get after the far-sighted building owner to put in a Pilot Superior Pipeless Furnace in his old building. Now is the time to get after the heating contracts for new buildings.

A glance at the opposite page will show you the reasons why the Pilot should be installed.

Take the Pilot piece by piece, compare its many features with those possessed by any other pipeless furnace on the market and you will agree that the Pilot is in very truth the most up-to-date and satisfactory heating system in existence to-day.

When you install a Pilot you know there will be no come-back. The Pilot Superior Pipeless Furnace is built up to a high standard and is subjected to a rigid test before leaving our factory.

A Pilot installed in your customer's home is a constant advertisement for you.

There is still some valuable territory open for dealers. Write for particulars to-day.

The Hall Zryd Foundry Co., Limited

Manufacturers of Pilot Stoves, Ranges and Furnaces

Hespeler - Ontario

Western Branch: Post Office Box 687, Winnipeg, Manitoba

BANNER STOVES AND FURNACES

Two

That Stand for

A Furnace as Big as

The Banner Pipe Furnace

The **Banner Pipe Furnace** represents the most satisfactory and efficient warm air system.

Warm air heating with "The Banner Furnace" as the "Heart of the System" provides an ideal method of ventilation and heating.

The Banner Pipe job can be installed for at least one quarter the price of a steam or hot water job.

The Banner is getting the business because it is efficient, satisfactory in every way, and is reasonable in price.

Many features such as cast-iron combination chamber, four individual shaker grate bars, large fire door, full rated capacity, large roomy ash pit, etc., make the Banner the most desirable line to handle.

Send for Catalog and

The Galt Stove &

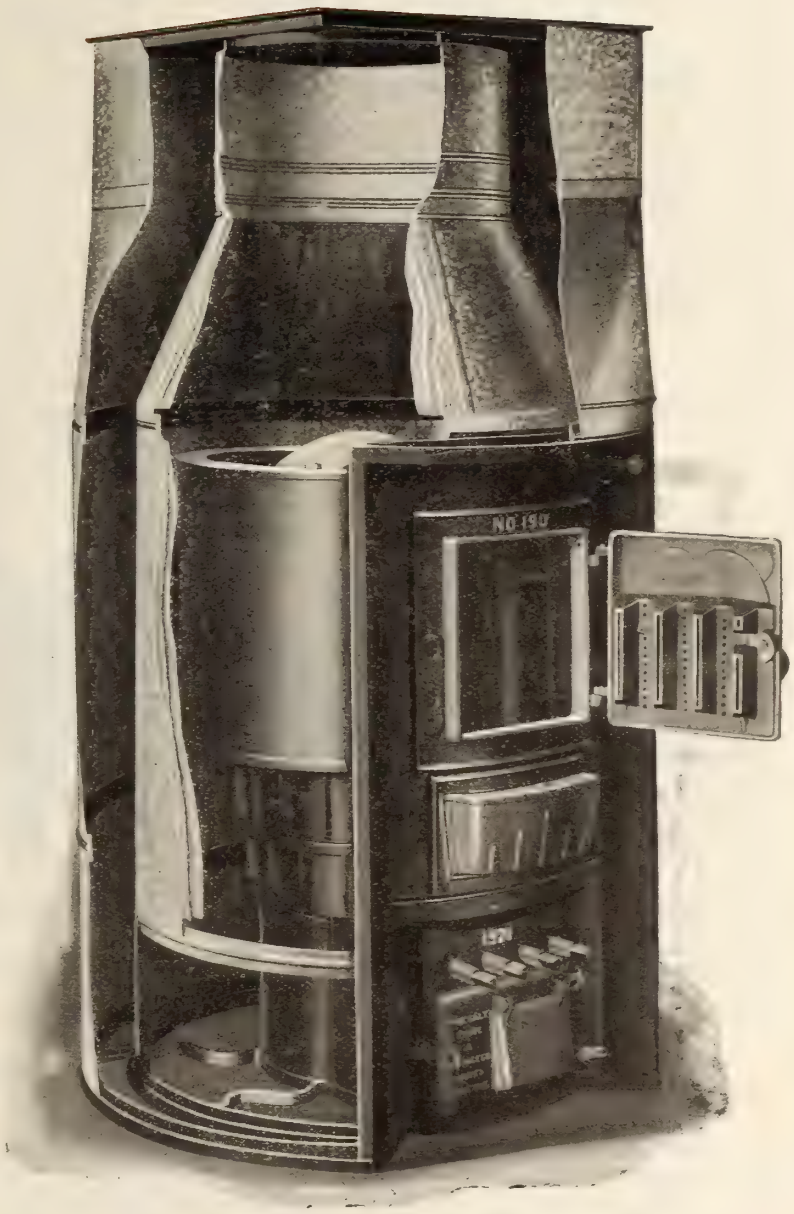
GALT

Banners

Leadership

a House—

BANNER STOVES AND FURNACES



The Banner Pipeless Furnace

The Banner Pipeless Furnace has made an enviable reputation as a furnace that is efficient and economical.

Thousands of Canadian homes were satisfactorily heated during the past winter by the Banner Pipeless. Our booklet of testimonials will be cheerfully sent for the asking.

There is a lot of money to be made by the Plumber by installing the Banner Pipeless Furnace. One man with a helper can install the Banner Pipeless in less than one day.

Our unconditional guarantee is behind every Banner Furnace.

Write to-day for literature and more particulars, and agency proposition regarding the Banner Pipeless Furnace.

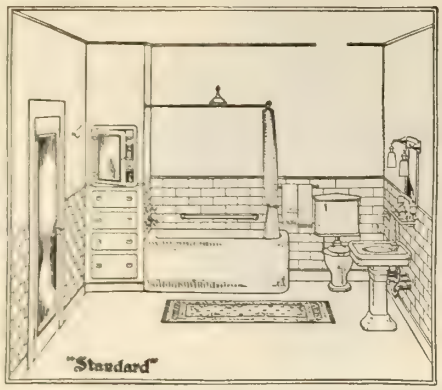
Full instructions for erecting with each furnace.

Made in five sizes.

Agency Proposition

Furnace Co., Limited

ONTARIO



Modern
Bathroom Fixtures

are a necessity. Health and comfort demand it and there is nothing that adds greater value to the interior of a house than up-to-the-minute plumbing fixtures.

We will gladly come around and talk things over and give you an estimate, whether you intend to buy now or later.

Space for Name

No. 1

"Standard"

KITCHEN SINKS

When we stop to consider that a woman spends 700 hours a year at the kitchen sink, we realize that nothing should be left undone to make those hours as easy as possible for her

One of the commonest faults with the old-fashioned sink is that a great many of them were installed too low, necessitating constant stooping that results in backache. This can be quickly remedied and we know you'll agree that the result is worth while.

Space for Name

No. 2

"Standard"

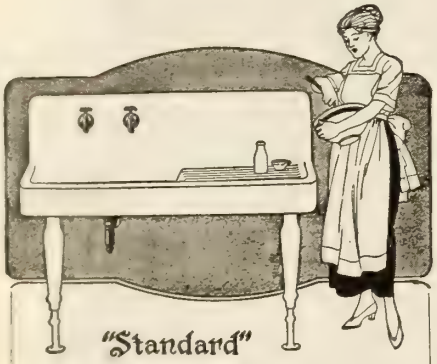
All Children Like A Good Bath

A boy's Saturday night protest is not against the bath. It is but an echo of a time-worn wail against washtubs filled too hot or too cold. Who wouldn't protest? Boys like water. But they like it humanely administered.

Make it easy to bathe and the protest will take flight along with colds, bad complexions and other disagreeable things. We have the kind of plumbing fixtures that you'll like and can install them at a reasonable expense. A letter or a telephone call will bring our representative.

Space for Name

No. 3



"Standard"

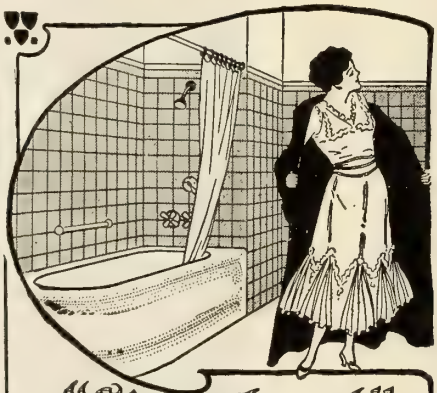
Is Your Kitchen Sink 36 in. High?

A woman's household duties require her to be at the kitchen sink several hours daily. Because a great many of the old-fashioned sinks were installed too low, it necessitates stooping on the part of your wife. The result is backache.

You can remedy this by getting her the correct height, up-to-date sinks. We have them.

Space for Name

No. 4



"Standard"

Plumbing Fixtures

The bath is worth more to our well-being than any tonic put up in bottles.

A modern-equipped bathroom is conducive to the more frequent bathing that doctors recommend.

We handle only the latest in bathroom equipment and will gladly call and talk things over with no obligation to you.

Space for Name

No. 5

Built-In Bath Tubs

are becoming more popular every day. They can be furnished to fit right or left-hand corners. The most modern bathroom fixture made. No dirt under legs or behind fixtures. Let us modernize your home. Drop us a line or phone.

Space for Name

No. 6

Select the ones you want

Another Link in the "Standard" Chain of Service——

Little drops of water will in time wear away a mountain.

Little ads in your local paper will wear away the resistance of the public to postpone buying and awaken their desire to have all the comforts and conveniences of modern plumbing fixtures now.

Little ads such as the ones shown on these pages are inexpensive to run and are rich in pulling power. They get results.

Cuts furnished include the illustration and copy. It is only necessary for you to insert your name and address.

They are yours for the asking. Order by number.

Standard Sanitary Mfg. Co.
Limited

General Office and Factory: Royce and Lansdowne Aves., Toronto, Ont.

Toronto Store:
55-59 Richmond Street East
Montreal:
New Birks Bldg.

Winnipeg Showrooms:
76 Lombard Street
Calgary:
325 Eighth Avenue West

Hamilton Store:
20-28 Jackson Street West
Vancouver:
860 Cambie Street

"MADE IN CANADA"

A Modern Pedestal Lavatory

A pedestal wash basin puts that "finishing touch that means so much" to every bathroom.

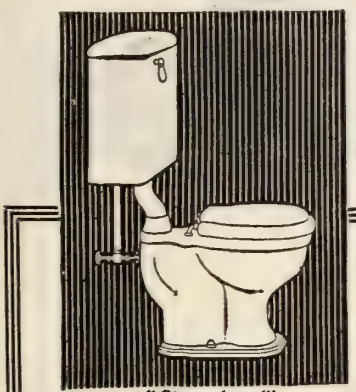
The wash basin is used more than any other fixture in the modern bathroom.

There's something substantial in its appearance and although it costs a little more, it's worth it many times over.

We can supply you with this and many other fixtures that will go far towards making your bathroom a place of health and comfort.

Space for Name

No. 7



"Standard"

Water losets

An attractive Water Closet combination is, as a rule, a good one, because those who design them are experts and know the requirements which go to make up an efficient operating unit. These tanks are made of cast iron enamel-ware. Have no joints to open up. Can be washed and are easily kept clean.

Let us give you a price on this outfit, or if you desire, on remodelling your whole bathroom, kitchen and laundry.

Space for Name

No. 8

Bathrooms of Character and Kitchen Sinks

Make home-life worthwhile. The service rendered by modern plumbing is never appreciated until something goes wrong with it.

We are in a position to install new fixtures either in your present home or in the one you may anticipate building. Consult us if it's plumbing. Our services are at your disposal and prices are right.

Space for Name

No. 9

to use — Order by Number

CANADIAN BRASS CO. LIMITED QUALITY SERVICE

CANADIAN BRASS CO. LIMITED QUALITY SERVICE

CANADIAN BRASS CO. LIMITED QUALITY SERVICE

CANADIAN BRASS CO. LIMITED QUALITY SERVICE

CANADIAN BRASS CO. LIMITED QUALITY SERVICE

APPLES

ARE BEST JUDGED BY THEIR TASTE

A BEAUTIFUL SKIN

DOESN'T ALWAYS COVER GOOD FRUIT

So it is with Water Taps. A first-class article must of course be highly finished with A-1 Nickel, but the important part is the mechanism.

Most Compression Work on the market to-day is of good appearance, but a large percentage does not give satisfactory service. A Tap may be defective even though it does not leak when installed. Sometimes poor metal or a thread short on the stem, but however small the defect, it will show itself after a few months' wear.

You see an illustration on this page, don't you? At first glance it looks just the same as dozens of other illustrations you have seen, doesn't it? Examine a little closer and you will find a Set Screw Flange Hose Sink Bibb of neat design and well proportioned which has a Square Threaded Stem, Strong Washer Encasements and Good Packing. Built for Service.

Our Galt and Toronto plants await your further commands.

CANADIAN BRASS CO. LIMITED QUALITY SERVICE

Quick as a Cat

Silent as a Pussy's Foot

Oak, Mahogany or White

Ever Growing in Public Esteem

The little things we did, made "Pussyfoot" perfect. For instance:

Supply Pipe—the flange is swedged from the solid brass.

Annealed Brass Tube in tank overcomes contraction cracks.

Pussyfoot Valves have that large silence chamber, weigh more than any other valve, therefore are silent and strong.

The deep red of our bronze shows more copper. Seats made to order, and finished in color to match "Pussyfoot" Tanks.

Bowls are standard.

The word "Pussyfoot" on valve and rubber Douglas float is your guarantee that we have searched and obtained the best.

Last, but not least, is the guarantee for life which this Perfect Tank allows us to give. Mr. Plumber, order "Pussyfoot" from your jobber, and insist on getting it. **They cost no more, and are silent, efficient, durable.**

The Aristocrat Laundry Tub

The "Aristocrat"—the Prince of Laundry Tubs. Substantial, durable and good-looking, the "Aristocrat" makes a visible impression upon people, whether they know anything about laundry tubs or not.

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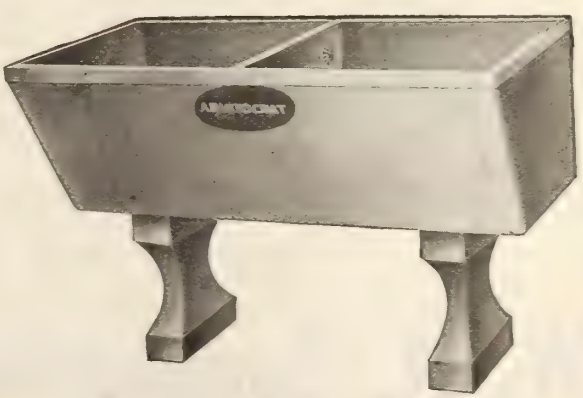

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PLUMBER AND STEAMFITTER OF CANADA

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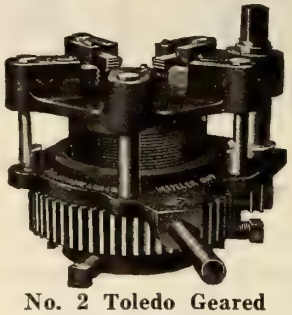

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Vol. XVI. TORONTO, APRIL 1, 1922 No. 7

Small Towns Need Better Sanitation

So Says President G. Bloomfield at Third Annual Convention of the Association of Plumbing and Drain Inspectors of Ontario—Wants Regulations Governing Location of Septic Tanks and Laterals—To Admit Master and Journeymen Plumbers to Future Meetings—Ask Adoption of Provincial Plumbing By-Laws

By Special Representative of Sanitary Engineer

ST. CATHARINES, Ont.—The majority of Ontario municipalities were represented at the third annual convention of the Association of Plumbing and Drain Inspectors of Ontario, held in St. Catharines. The objects for which the convention was held were accepted as follows:—1. To suggest plumbing regulations which would govern the design and installation of plumbing systems and to encourage the adoption of such regulations. 2. To advance the standard of plumbing, drainage and hygiene by reading and discussion of papers, and interchange of practical and theoretical knowledge and experience. 3. To encourage and promote Drainage Inspectors, after an examination as to qualifications, Plumbing and Drainage Inspectors.

In his annual address, President G. Bloomfield of Brantford welcomed the delegates and spoke as follows:—

"Another year has rolled around and I want to thank all of you for the interest you have taken in coming here. I want to thank the executive for their assistance and above all the secretary for the good work he has done. I would like to see the association adopt a plan by which we could get the other provinces organized so a Dominion organization could be formed. At future meetings we could exchange a speaker with some other province. If it is the will of the association I would like to see some move made to have the bill drafted by the Provincial Board of Health, put on the Statute Books.

Regulate Septic Tanks

"If this is not possible I would like to see one drafted that would regulate the location of septic tanks and laterals and appoint inspectors to see that they are kept from polluting the water supply with the sewage.

"It is an improvement to have our meetings in March as it gives us a better chance to get in touch with the new city councils who have hardly warmed their chairs by the end of February and are more likely to take more notice of our recommendations than later. I would like to see a short report of this meeting sent to each city council in Ontario. If it would be practical I would like to see a delegate sent to the masters' meeting asking for a resolution to hasten the Ontario Government's action in connection with sanitary regulations. I would like to see an educational campaign started to let the man on the street know that the only people interested in cheap plumbing are the cheap contractors and real estate men who want to get rid of their speculative properties and leave a legacy of disease and trouble to the buyer.

F. C. PALMER

Sanitary inspector of Oshawa, Ont., elected president for 1922-23 of the Association of Plumbing and Drain Inspectors of Ontario.

"Every opportunity should be used to educate the public that good work is necessary and the smaller towns should get the most of our attention as the larger ones are in beter shape. If we can bring the rest of the province to the same standard as Toronto we will be doing grand work."

Keep Record of Problems

Secretary W. H. Meadows, Toronto, reported that he had secured printed constitutions which had been forwarded to all members, and that many questions had been answered by him during the year. W. Bush, Toronto, felt that records should be kept of the problems referred to the secretary during the year and presented for general discussion at the next convention. S. Daugherty, Ottawa, felt that if such a record were kept it would be of great interest to the members and should be productive of big results in the ideas that would result from a general discussion. The treasurer's report was referred to the auditors and owing to the absence of two auditors, Messrs. W. Bush, Toronto, and D. Kirk, Toronto, were elected to fill their places.

M. M. Maxwell. secretary of the Chamber of Commerce extended the good wishes of that body in welcoming the delegates. He pointed out that the convention was particularly of interest in that work which the delegates direct so intimately affected the health and welfare of the communities which they represented. It was necessary to get together for interchange of ideas. The trend of the time was toward community activities and ideals.

Other local representatives included, Dr. D. V. Currey, M. O. H. of St. Catharines, Mayor Graves, Aldermen Wright and Taylor. The delegates were entertained by the city at luncheon.

In his address, Dr. D. V. Currey pointed out that St. Catharines was fortunate in that there had been no serious epi-

demics and that the foreign section had not caused any serious trouble. The effort of the community was to prevent colonies of foreigners living under Central European conditions, and to bring them to a realization that cleanliness, fresh air and sanitation was necessary to healthy conditions.

Ask Adoption of By-laws

The report of the executive committee as presented was taken up. The question of places without inspectors was dealt with and after discussion it was moved by D. Kirk, Toronto, and seconded by J. C. Young, London, that the secretary secure copies of local papers which report proceedings of the meeting and send copies to each municipality together with a circular prepared by the secretary asking that they appoint a plumbing inspector and pass a plumbing by-law.

G. BLOOMFIELD

Brantford, Ont., retiring president of the Association of Plumbing and Drain Inspectors of Ontario

On motion of D. Kirk, seconded by A. G. Metherall, Peterboro, it was recommended that master and journeymen plumbers of the city in which the convention is being held, be invited to attend future meetings of the association.

In connection with the matter of sending a copy of a resolution from the association to Hon. W. R. Rollo requesting that the proper provincial law governing plumbing, etc., be passed and put into force, it was found that while his letter to the association under date of September 29, 1920 expressed his determination to have it adopted by the government at the first opportunity it had not yet been acted upon. It was moved that a second letter be sent to that official asking the adoption of the plumbing by-law. In this connection it was moved that the members be asked to send in a statement of the difficulties they have encountered through lack of an adequate by-law.

The following officers were elected for 1922-23:—President F. C. Palmer, Oshawa, vice-president, A. G. Metherall, Peterboro; secretary, W. H. Meadows, Toronto; treasurer, S. Daugherty, Ottawa; executive committee, D. McNamara, Fort William, G. W. Bloomfield, Brantford, P. McPherson, St. Catharines, J. C. Young, London, W. Hughes, York Township.

Brief papers were read by J. W. Trotter, Toronto, A. G. Metherall, Peterboro, D. Kirk, Toronto, F. C. Palmer, Oshawa and W. Hughes, York Township, the latter condemning misfit architects and carpenters who launch into the building trade and are responsible for much of the botched building work and inadequate sanitary and heating arrangements in them.

In his address following the election, President Palmer drew attention to the advisability of uniform regulations governing plumbing. He took the stand that the uniformity should be Dominion-wide and if all the legislators could not be gotten into line that each municipality in every province should do it individually with the assistance of the association.

In choosing the next city of meeting, invitations were read from London, Oshawa and Fort William, the first-named being finally decided upon.

Among those attending the convention were the following: G. W. Bloomfield, ex-president, Brantford; W. H. Meadows, secretary, Toronto; P. McPherson. St. Catharines; J. W. Trotter, Toronto; S. Daugherty, Ottawa; W. Hughes, York Township; H. Webber, Niagara Falls; F. McCann, J. T. Pepper, W. Bush, D. Kirk, all of Toronto; D. S. Wark, Hamilton; A. G. Metherall, Peterboro; S. McNamara, Fort William; J. C. Young, London; F. C. Palmer. Oshawa; F. J. K. Norris, Toronto; Jas. Cluny, Galt; J. Scroggie, Guelph.

Civic Banquet

The city entertained the delegates at a civic luncheon at one o'clock yesterday, after which they were taken on trips of inspection to the Kinleith Paper Mills and the Barnesdale Wineries.

Messrs. A. H. Jones, of Port Dalhousie, and George Scroggie of Guelph were elected to membership.

The four new members, Messrs. Scroggie, Jones, Norris and Cluney, spoke briefly of the good work the association should be able to do in backing their efforts.

Mr. Meadows sought to decline the position of secretary for another year and Mr. Palmer, however, felt that no one member was so well capable of meeting the requirements of the position in aiding the various inspectors with advice on their troubles.

Mr. Kirk, in highly appreciative terms, referred to Mr. Meadows' long service as a sanitary inspector and Mr. Bush, on behalf of the Association, presented the secretary with a pipe as a token of the esteem of his fellow members. In Mr. Kirk and Mr. Meadows were present the two first plumbing inspectors appointed in any city in Canada.

It had been a pleasure to work in the association, Mr. Meadows declared, in reply, with the able assistance of Mr. Bloomfield, and the close co-operation of all the members of the Association. He thanked them for the assistance they had rendered him.

A paper on Sanitary Developments in York Township, was followed by a general discussion.

Industrial Hygiene

J. W. Trotter, of Toronto, read a paper on what had been done in connection with the division of industrial hygiene in Toronto, where two plumbing inspectors were engaged in investigating conditions in the different industries,

A. G. METHERALL

Sanitary Inspector of Peterboro, elected vice-president for 1922-23 of the Association of Plumbing and Drain Inspectors of Ontario.

of which there were over 2,000 in the city. The inspector, in addition, to plumbing and drainage work, had to take into consideration all conditions in the several industries which were likely to affect the health of the workers, such as gases, chemicals, trade dusts, lighting, ventilation, temperature, air space, overcrowding, expectoration, etc.

A. G. Metherall spoke on problems in Peterboro's drainage system which have given considerable trouble and expense. Tile pipe, they discovered, was liable to chokage by roots. To overcome this problem iron pipe is now being installed to the street line, and farther where necessary.

How Toronto is abolishing privy pits was shown in detail by Benjamin Kirk, who illustrated his address with lantern views showing the conditions met and overcome.

F. C. Palmer spoke on the good of the association. He thought it should spread out. The object was not alone to help

Delegates to Plumbing and Drain Inspectors' Convention

From left to right, Ald. C. Taylor, St. Catharines; M. M. Maxwell, Manager St. Catharines Chamber of Commerce; J. W. Trotter, Toronto; H. Hughes, York Township; H. Webber, Niagara Falls; D. S. Wark, Hamilton; S. Daugherty, Ottawa; J. C. Young, London; S. McNamara, Fort William; E. J. K. Norris, Toronto; F. C. Palmer, Oshawa, (new president); J. T. Pepper, Toronto; A. G. Metheral, Peterboro; James Cluney, Galt; D. Kirk, Toronto; P. M. MacPherson, St. Catharines; J. C. Bonham, St. Catharines; J. R. Lewis, New York; W. Bush, Toronto; F. McCann, Toronto; G. W. Bloomfield, Brantford; W. H. Meadows, Toronto (Secretary).

themselves, but to help the association at large. It should be noted that the association existed to help the master plumbers not to buck them.

He thought inspectors could solve many of their problems better by writing to the association, and having the members give their opinions as to their solution. Then the inspector could go to the Board of Health, or engineer, with a recommendation that was backed by the Ontario Association of Plumbing and Drainage Inspectors. It is well to get the opinion of the association, and let the councils know there is an association ready to help.

He felt that it was essential to have a uniform by-law governing inspection common to the whole of Canada, not Ontario alone. If it could not be put through in the province, each inspector should try to put it through his own municipality.

"If the standard of plumbing is not kept up, plumbing inspection will go to the dogs," Mr. Palmer declared. He thought the time was coming when the plumber would boost the job—"the better the job, the better the price."

Mr. Palmer called attention to the fact that inspectors not only had the power to make a house to house inspection, but the Health Act stated "an inspector shall make a house to house survey of his district."

Mr. Palmer pleaded for co operation of trades, and the doing away with misfit architects and carpenters not consistent enough to work for a builder, but who went after contracts for himself and made a botch of them.

Mr. Bush referred to the executive committee the matter of simplified plumbing and standardization of inspection.

Mr. Bloomfield was chosen as delegate to the Master Plumbers' Convention in Hamilton next month.

In installing Mr. Palmer as president, past president Bloomfield declared himself as tickled to death that he should be retiring in favor of a man so active and able as Mr. Palmer.

Dr. Curry's Paper

Dr. Curry spoke as follows:

It has often been said that "Cleanliness is next to Godliness," and certainly plenty of water used inside and outside the human body tends tok eep people healthy.

On account of pollution of the water, nearly every municipality nowadays, treats the drinking water with chlorine, and if this is done properly typhoid fever and kindred diseases are reduced to a minimum. To give some idea how efficient chlorination has been in this city, I might state that when I was house surgeon in the General and Marine Hospital here twelve years ago, we had about twenty beds occupied by typhoid fever patients at one time, and the nurses certainly had a great training in nursing this disease. Now, there are some nurses who go through their training at this hospital and perhaps see one case, and that case is usually brought from outside the city. Accurate tests and careful chlorination have reduced this disease to a minimum.

The plumber has two essential duties to perform. 1st—to bring water into the house, and 2nd to take away the sewage. Pure water may be purchased by any municipality and to-day, we consider it a crime to have an outbreak of typhoid, etc., in any self respecting municipality.

The waste from dwellings is of three different kinds—sweepings and ashes from fires, waste from kitchens, scraps of food, called garbage, and sewage—the most important from a health standpoint, consisting of solid and liquid excreta of the body and waste water from wash tubs, bath tubs, kitchens and laundries.

Ashes have little effect on the health except that they absorb moisture and should not be left in a cellar nor should they be used to bank up a house with.

Kitchen garbage readily decays and it is very doubtful if any ill effect in health is noticed from living in close proximity to a garbage dump unless the flies and rats carry disease.

Sewage Most Important

Sewage is, however, much more important than either of the former wastes and one which until recently was nearly always considered the least important. Let us just look back a few years and think how this waste was got rid of. usually it was tossed about fifteen feet from the back door, and what happened? epidemics of typhoid, cholera and dysentery appeared each year—Why? Because the surrounding wells were polluted from the soil.

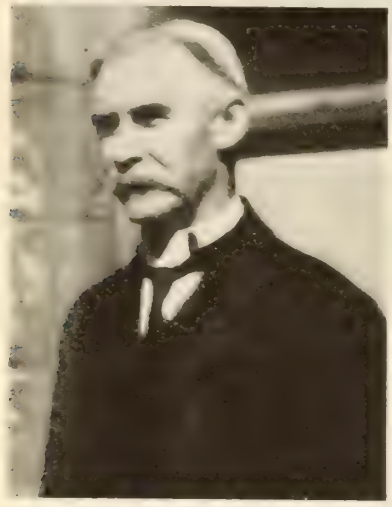
In a city, besides the dwelling house excreta, etc., sewage may contain liquid excreta from stables, refuse from factories, the drainage from polluted soils and the excess rain water not retained by the soil. Fresh sewage is not very offensive to smell and it is doubtful if it is dangerous to health It is, therefore,

essential that sewage should always be removed as soon as possible and before decomposition begins.

The days of the cesspool and outside toilet in cities have passed. They served their purpose, but on account of the pollution of the soil, they could be done away with. In isolated houses and small communities where there is not a general water supply or where the expense of sewage is too great, the pail system can be used, but a septic tank would, however, be much better and less dangerous to health. But, if at all possible, the waste water should be used to carry off the other excreta from a dwelling.

Simplicity

The essence of a good system for removal of sewage from a dwelling or building is simplicity. We sometimes



W. H. MEADOWS

Toronto, re-elected secretary of the Association of Plumbing and Drain Inspectors of Ontario for 1922-23.

forget this and we see elaborate waste of material in some buildings where a much simpler form could be used and much money saved. We have not got to the stage yet where all plumbers study how to do the work in the best and cheapest way, and after receiving reports from our inspectors here, I wonder if some plumbers have the health interests of the community at heart. Often we find that the plumbing by-law is not observed at all, and we sometimes find that wrong material is used in places where it will not likely be inspected.

Sewer gas is detrimental to health, and recently I read of two deaths from this poisoning. There must be dozens of houses in every city where a certain amount of sewer gas is escaping on account of leaks in the pipe, poor traps, etc., and where families are continually ill. These leaks may be discovered by the smoke test, and this should be used in every suspicious case. Many municipalities, however, have not the facilities for this test, we have not here, but we hope to have shortly.

It has been said that a perfect system of sewage disposal from a dwelling will provide for:

1. The speediest possible removal from the house to the public sewer of excreta and other refuse by water.

2. The prevention of the deposit of foul matter in any part of the drainage system and of percolation into the soil of polluting liquids.

3. The establishment of a current of air through every part of the soil drains and pipes in order to disperse any foul gases that may form and to allow them to escape with safety into the open air.

4. The prevention of any entry of air from soil pipes, drains and waste pipes into the house.

5. The exclusion of the air of the common sewer from the house drains and the house.

A plumbing inspector, no matter how conscientious he may be, can hardly make sure of all the work done, on the sewage disposal, he must confine his inspection to certain essential things, and trust that the plumber has carried out his duties faithfully.

Man is a peculiar creature. He thinks laws were just made to break, and anyone who has done any public health work must realize how difficult it is to make the average man do certain things which are bound to improve health. One of the most foolish things I hear so often is "We did not need these things thirty years ago." In my opinion, that man's usefulness ceased just that long ago. If you think back, we had then no sewage disposal, no electric lights, telephones, and very few of us had running water in our homes. And because we had not progressed then, Mr. Citizen thinks that to-day we are infringing on his rights in enforcing health laws.

We are in a stage of transition, things are changing every day, our views on all things are materially different and public health has taken great strides, and you in your work must either be improving in your work or going back. Your duties are not always pleasant and you will always find some people who think they know far more about your duties than you do yourself, and they forever are trying to tell you how to do things.

It has been said that any inspector who is liked by everyone in the community cannot be doing his duty faithfully because in carrying out his duties, he is bound to antagonize someone. Even if you do make enemies, it is better to feel that you have done your work well, rather than letting things get by you. Few of us, you know, like to hear about our mistakes, and when they are pointed out, we are inclined to resent it.

It has been known for a plumber to stand up against a soil pipe that is leaking so that the inspector will not see the water oozing through. Things like this of course, are not fair to the inspector, the plumber, to the people in the house; and while much of the poor plumbing we find has been put in by amateurs, I am also convinced that in some cases, the defects are due to careless workmanship.

Description of Peterboro Filtration Plant

Electric Pumps Have Capacity of 12,000,000 Gals. Daily—Six Filter Beds

PETERBORO, Ont.—The new filtration plant, in operation for over three weeks, has, in the opinion of the engineers in charge, demonstrated its ability to take care of all the work which has been assigned to it. The plant is now working both day and night and a decided improvement in the city water has been noticed.

The plant itself is one of the most up-to date in the country and embodies all the most modern improvements. The working of the six filter beds which it contains is so simple that it can be done by one man. In working the plant three men will be employed working eight hours each.

The visitor in making a tour of the plant would first visit the low level pumping station in the main building. Here are situated two electrically driven centrifugal pumps with a combined capacity of 12,000,000 gallons daily. These pumps take the water from the river through two 30-inch pipes, which extend 80 feet out into the river and deliver it to the sedimentation basin. It is while on its way to the sedimentation basin that the water receives its dose of the coagulated material which takes up the impurities while resting in the sedimentation basin and is later filtered off. Before entering the basin the water is sent over an aerator where it passes in a thin stream over the cascade of five steps which gives the oxygen of the air an opportunity to assist in the purification process.

The sedimentation basin is covered so that a good view of it cannot be obtained. It is 110 feet long, by 70 feet wide and 16 feet deep. It has a capacity of 800,000 gallons and by allowing a three hour period of coagulation can easily handle 6,000,000 gallons of water in a day.

From here the water is admitted to the filter beds. These are six in number, and are inside the main building. They are 24 feet long and 17½ feet wide and have a capacity of 1,000,000 gallons each per day. They are built of concrete and designed along the most scientific lines with all modern improvements.

From the filters the water goes to the clear water basin which is situated underneath the filters themselves and has a capacity of 100,000 gallons. This only serves as a temporary place of storage for it is immediately pumped to the reservoir. This is a covered basin 165 feet long by 135 feet wide and 14¼ deep. It has a capacity of 2,000,000 gallons.

From the reservoir the water is pumped directly to the city. The pumps for

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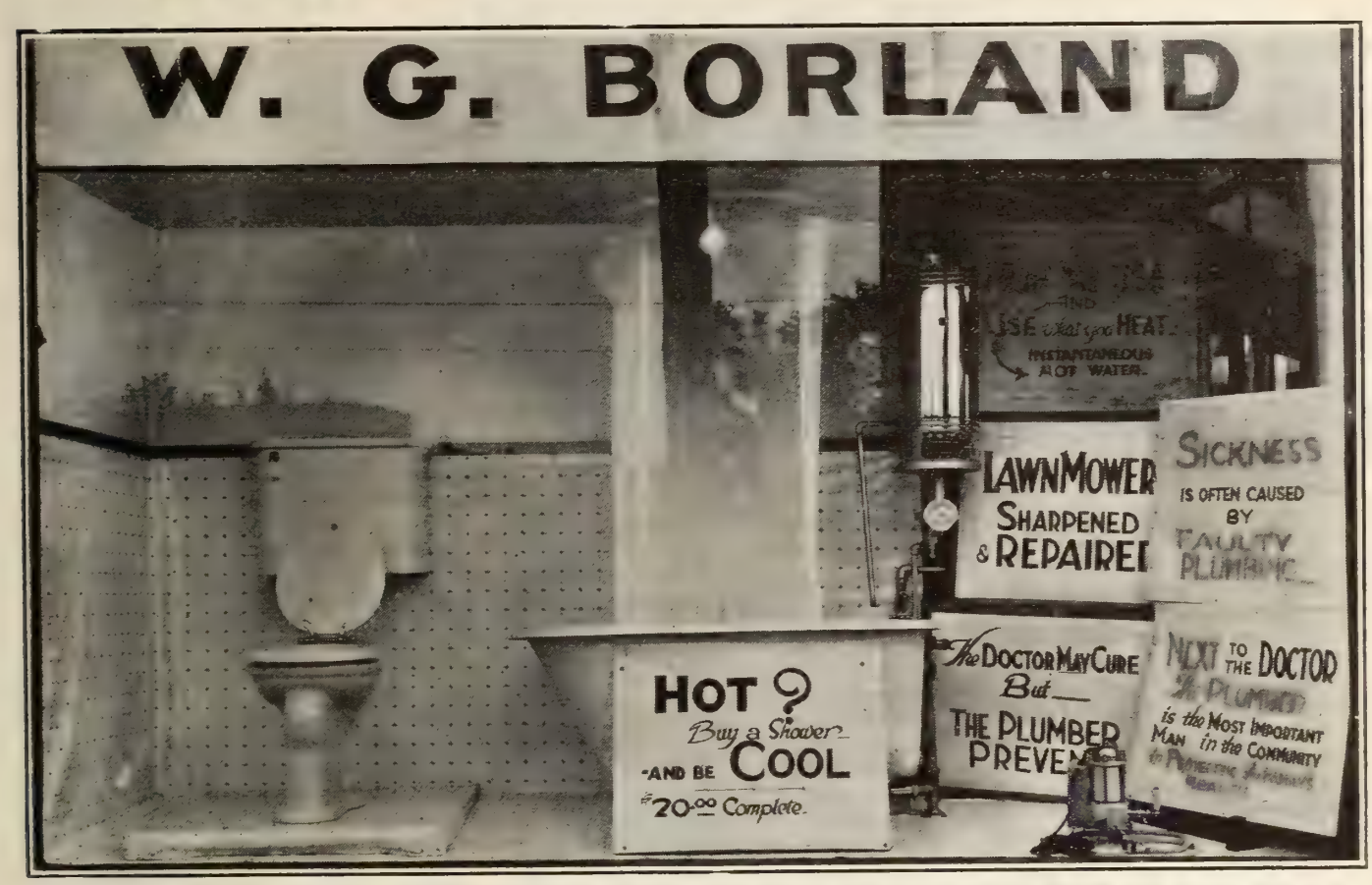
Plumbers Vital to Community Health

Educating the Public to the Importance of the Sanitary Engineer is Very Essential—Montreal Plumber Advocates Window Displays With Prominent Cards Pertaining to Health of Community


W. G. BORLAND
LAWNMOWER SHARPENED & REPAIRED
SICKNESS IS OFTEN CAUSED BY FAULTY PLUMBING
HOT ? Buy a Shower AND BE COOL $20.00 Complete
The DOCTOR MAY CURE But— THE PLUMBER PREVE
NEXT TO THE DOCTOR The PLUMBER is the MOST IMPORTANT MAN in the COMMUNITY

Catchy widow cards and attractive arrangement of plumbing wares with a seasonable appeal are means employed by W. G. Borland, Montreal, in stimulating interest, particularly at this time of year. For the spring and summer months Mr. Borland advocates the use of such cards as the one shown resting against the bath tub. Messages are also used regularly tending to link up the plumber with community health. Three of such are used in this display. The windows of this shop are always clean and attractive and containing such message which attracts attention.

"TOO MANY people look upon the plumber as the man who comes into their home and puts a washer in the tap," said W. G. Borland, 5726 Sherbrooke St., West Montreal to Sanitary Engineer.

"Meaning by this statement that the public do not realize the plumber is very closely connected with the health authorities. That he is, or should be, responsible for the maintenance of health in his community insofar as his trade demands. And this is a good deal, for the heating of the home, the water supply and the sewerage disposal are three very important factors in the daily life of his customers for which he is a supervisor.

"If we can educate the public to the importance of our trade in connection with the sanitation of the locality in which we are situated, we will have made a long stride towards improvement in our business, and would result in bigger sales for us," continued Mr. Borland.

Advertising would lend most aid to this teaching in Mr. Borland's opinion. Most plumbing establishments have a display window, or could convert a good amount of floor space to one, and here is where a good amount of missionary work can be carried out. "We are often judged by our outward appearances, and if a clean and neatly dressed window meets the approach of a customer, or even the casual glance of the passer-by, a much brighter reflection is cast than from the disregarded and neglected display of wares. Enamelled ware and other plumbing supplies are ideal for an attractive window display, and while the fixtures are often placed more or less permanently, the attractiveness can be maintained by keeping it always spotlessly clean and add from time to time some new appliance. Another means of doing this is to place catchy display cards in the window, worded to draw attention at first sight."

Changing Ads Frequently

The local newspaper is another medium that will prove of great benefit in advertising. But rather than having an unchanged advertisement run week after week, the force of the message is conveyed by changing often, with some statement pertaining to the health of the community featured.

Mr. Borland recently had an attractive display, featuring a water heater and a curtained shower bath. While the window together is that of a bathroom, space however, does not permit of a more complete outfit. It will be noticed that display cards are prominently placed with some catchy wording that is bound to attract attention, dealing with sanitation and health. The articles featured are appliances that are in demand in the warm summer months, it being special lines of this nature that are displayed with results by Mr. Borland.

Collection of Interest on Overdue Accounts Insecured by Trade Form

Editor, Sanitary Engineer:

I am getting out a new counter check book and wish to ask whether, if printed on this that interest will be charged on overdue accounts it would be legal without any signature of the purchaser to that effect.

Judges here take the stand that interest cannot be charged on open accounts even though it be past due, unless it is covered by an agreement to that effect or by note or by judgment. Kindly give me this information.

(Signed) J. W. Richardson,
North Bay, Ont.

THE LEGAL rate of interest is 5 per cent. where no other amount is mentioned in the undertaking. A maximum of 1 per cent. a month or 12 per cent. a year is allowed by law to be stated. It is necessary that the rate of interest on overdue accounts be agreed to in writing by the debtor in some way. This appears to be the law as it applies to the province of Ontario. However, each province and state has its own mercantile laws so that it would be necessary to obtain legal opinion on these.

It would therefore appear that merely placing the words "interest at 7 per cent. per annum charged on overdue accounts," on statement form does not give the seller proper legal protection in the matter, though it is the accepted business policy to do so. It would be necessary that this should appear on a contract or some such signed document.

The following advice on this point is from a legal authority on the subject:

"In cases where collection is made without suit, the laws of Canada do not allow for recovery from debtor, of the charges sustained by you.

"Where suit is undertaken, the party defending, should the action prove successful, is bound by law to pay whatever expense the court has been put to. In certain cases, the doctor is also bound to pay some of plaintiff's attorneys fees, but never commission on the amount recovered for the plaintiff. In the Division Courts of Ontario, debtors pay actual court costs, but you are held liable for commission and attorney's fee for conducting the action. The latter varies anywhere from $3.50 to a full 10 per cent of the amount involved.

Must be Undertaking by Debtor

"With reference to interest, the legal rate of 5 per cent applies automatically to any note, acceptance or judgment. You are quite within your rights in asking for 7 per cent. on overdue accounts, but you cannot enforce payment of same, not even 5 per cent. unless the other party signifies his willingness to the arrangement—in other words there must be an undertaking on the part of the debtor, to pay interest before you can enforce the same."

A recent ruling on this subject given in Saskatchewan is as follows:

The rule in allowing interest is founded either on the ground of (1) a contract expressed or implied to pay interest, or (2) as damages for the improper withholding of money or for the breach of some contract or violation of some duty, or (3) where it is given under the provisions of some statute.

Chapter 39 of the Statutes of Saskatchewan, being King's Bench Act, is the statute which deals with interest in Saskatchewan, and in section 28 it provides that interest shall be payable in all cases in which it is now payable by law or in which it has been usual for a jury to allow it. Subsections 1 and 2 of section 29, however, are the sections which we would be particularly interested in, as subsection 1 provides that upon the trial of an issue or upon an assessment of damages, upon a debt or sum certain, payable by virtue of a written instrument at a time certain, interest may be allowed from the time when the debt or sum became payable; while subsection 2 provides "if such debt or sum is payable otherwise than by virtue of a written instrument at a time certain, interest may be allowed from the time when a demand of payment was made in writing, informing the debtor that interest would be claimed from the date of the demand."

Some Cases in Point

In Hart vs. Greer, 9 W.W.R. p. 709, the district court judge held that the printed words on an account, "interest at 10 per cent chargeable after thirty days," together with verbal references to these words and notification that interest is being charged, constitute a demand in writing sufficient to support a claim for interest after the expiration of the thirty days.

In the Last West Lumber Company vs. Haddad, 9 W.W.R. p. 578, the Supreme Court en blanc of Saskatchewan held that in all cases where, in the opinion of the court, payment of a just debt has been improperly withheld, and it seems to be fair and equitable that the party in default should make compensation by payment of interest, it is incumbent upon the court to allow interest for such time and at such rate as the court may think right.

In Marshall Wells vs. Eaton & Gordon, 8 W.W.R. p. 789, the district court judge of the Calgary Judicial District stated in his judgment as follows:

"It has also been held that a general intimation on a tradesman's statement of account, that interest will be charged after a certain period of credit, is not a sufficient notice of demand of interest within s. 28 of 3 and 4, William IV., ch. 42, in re Edwards, Williams vs. Trench, 61 L.J., ch. 22. This decision still stands as an authority on this particular point, but in so far as it decided that an agreement to pay interest would not be implied by the courts (in respect of moneys due on an account for goods sold and delivered) from the past dealings of the parties, it has been overruled by the Court of Appeal, in re Anglesey, Wilmot vs. Gardner (1901), 2 ch. 548, 70 L.J., ch. 810, which lays down the same principle as that contained in Higgins vs. Sargeant and Nichol vs. Thompson, that an agreement to pay interest may be reasonably inferred from the previous dealings of the parties, and that in such cases it is recoverable."

In that case he decided that in the absence of some special usage of trade or of some stipulation expressed or implied, a trader is not entitled to interest on the price of goods sold and delivered. An agreement to pay interest, however, may be reasonably inferred from the previous dealings of the parties, coupled with a printed notification of intention to charge interest on the vendor's statement of account.

In the case, Marschall Wells vs. Eaton & Gordon, the plaintiffs had printed in heavy type on their statements the words, "Interest at 8 per cent. charged on all overdue accounts," and the judge found as a fact that the defendants were in the habit of making payments from time to time on account of their indebtedness, and that, although they were aware that interest was being charged to them, they evidently did not wish to force the issue of their liability or non-

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Saskatchewan S. and H. Engineers Meet

Representative Gathering at Fourth Annual Convention of Sask. Society of Sanitary and Heating Engineers—Banquet and Theatre Party—Many Interesting and Instructive Addresses and Discussions

By Special Representative of Sanitary Engineer

Group photo taken for Sanitary Engineer of the delegates to the fourth annual convention of Saskatchewan Society of Sanitary and Heating Engineers, held in Regina.

REGINA, Sask.—A very representative gathering was on hand for the opening session of the fourth annual convention of Saskatchewan Society of Sanitary and Heating Engineers, which lasted three days and was held in this city.

The meeting was opened with roll call and the president's address of welcome to the delegates and the work was then carried on as per program.

The convention heard the sec.-treasurer's report on the splendid financial standing of the Society with great pleasure.

The balance of the first morning session was taken up with enrolling of new members, payment of dues and listening to his Worship, Mayor Jas. Grassick's address of welcome to the city of Regina.

The afternoon session was carried through as per program—the first item of which was the election of officers. J. S. Robertson, Regina, was elected president, Jas. Yates, Brandon, was elected vice-president.

Jas. Adam who has been sec-treasurer since the time the Association was formed, asked to be allowed to resign from this office and Geo. R. Seater, Regina, was elected sec-treasurer.

The Executive Committee elected were:—

E. P. Pauline, Regina,
T. Baylis, Moose Jaw,
N. Beaton, Saskatoon,
H. J. Warron, Yorkton,
P. J. O'Neil, Swift Current.

The balance of the afternoon session was given to unfinished and new business.

Theatre Party

The convention as a body attended the Grand Theatre in the evening with their ladies and an enjoyable time was had by all.

The Thursday session was called to order at 9.30 a.m. and some little changes were made in the program on account of Jas. Smith of Winnipeg having advised that it was with regret that he could not be present to deliver his address.

An address was given by R. H. Murray, Provincial Director of Sanitation, on the subject, "Sewage disposal and treatment." This address is given fully elsewhere in this issue. An address was also given by R. N. Blackburn, Provincial Chief Inspector of Steam Boilers on the subject, "Provincial legislation affecting steam plants." The address by J. E. Yates of Brandon on the subject, "Pressure Hot Water Heating" which was to have been heard on Friday morning was given on Thursday.

Visit Power House

The afternoon session was taken up with a visit to the Imperial Oil Works plant and the power house of the Parliament Building. Upon returning to the hall, the balance of the program was carried out and the address by F. L. Bastedo on the Mechanic Lien Act was listened to with a great deal of attention.

The banquet in the evening was a decided success, and it was a revelation the talent that was discovered amongst the members, and the cartoons of some of the members done by Mr. Chenoweth of the Engineers & Plumbers Supply Co., were of no mean order. A most enjoyabl time was had by every one.

On Friday morning, H. D. Mathias, Regina City Plumbing Inspector, gave an interesting address entitled, "From boggy creek to Wascana Valley," followed with an address by G. G. Taylor of Saskatoon, City Plumbing Inspector.

The question box, conducted by E. P. Paulin, produced some very interesting questions and all left the convention hall feeling that they had found a solution to several of their troubles. Those who had no questions to ask feel that they had accumulated a great deal of knowledge through this source.

The convention was adjourned until March 1923, when it is expected to meet in Saskatoon.

TRADE OPPORTUNITIES IN LONDON DISTRICT

London, Ont. — There is a large volume of building getting under way here early and men in the trade are looking for an unusually busy season. Home building promises to break all records and the shortage of houses to rent is leading some of the speculative builders to get busy. The great majority of the construction work that will go on though is for home owners and some of the projects are especially attractive from a plumbing and heating standpoint. Included in these will be a number of homes ranging in price all the way from $8,000 up. Local architects are also busy with plans for a number of larger jobs including business buildings several of which range from $50,000 to $75,000. Plans are nearing completion also for the group of buildings for the Western University which will cost $1,500,000 and tenders will be called, it is stated, about the middle of May. Work will begin also in a few weeks it is stated on the big new hotel which will cost over a million.

Maintenance of Plumbing Installations

Leaving of Plumbing Inspection Work to Sanitary Inspectors Working Under Local Boards of Health is Insufficient Protection From Faulty Installations—Advocates Reinspection of Plumbing When Tenants Change—Saskatoon Has Fewer Faulty Installations Now

Address by G. G. TAYLOR, City Plumbing Inspector of Saskatoon, before Fourth Annual Convention Saskatchewan Society Sanitary and Heating Engineers

A GREAT MANY years have been spent getting together by-laws governing plumbing systems, with the object in view of protecting the health of the public, with the result that practically all the provinces and municipalities throughout the whole Dominion demand the installation of plumbing fixtures in a proper and sanitary manner. In some instances these regulations are carried out satisfactorily; in other cases systems have been renewed, altered and added to without being brought to the attention of the Inspector in charge of this class of work. When a plumbing permit has been applied for and the work authorised, the system is afterwards water and smoke tested, the general opinion then is that the work will last the lifetime of the building. It is on this question I would like to say a few words, and, if I may, make a suggestion which I hope will get some little consideration.

We often hear of plumbing inspectors being let out for lack of construction work to keep them busy, when right along the whole sewage system there are hundreds of systems in a rotten state of repair. We all know the causes attributed to these defects, and that they are most likely to be found in buildings where there is a continual change of tenants. The easiest way to clear a choked waste line and avoid a plumber's bill is to cut into the lead waste and wrap it up any old way afterwards, or if a house has been left vacant for a few days during the winter months the fixture traps become frozen and if at all possible are fixed up by the tenant or janitor in a crude way. Then again one will very often find an occasional opening in the soil of waste line where fixtures have been taken out and no attempt to close up the connection, allowing the usual escape of sewer gas. You, gentlemen, are all conversant with the various causes which render a plumbing system dangerous to the health of the public. The expansion of lead joints in soil pipe line exposed to frost; defective joints in soil pipes from settlement of buildings; defective joints soil and waste lines by vibration in buildings such as mills, factories or workshops where heavy machinery is in use. These are just a few of the many causes which go to strengthen the necessity of rigid inspection periodically of all installations. This in my opinion is just as essential as the water and smoke testing of all new work. I have taken the trouble to write to a great many towns in Eastern and Western Canada and in the States to find out how this work in taken care of and almost in every case I have been informed that the maintenance of all plumbing installations is left to the mercy of sanitary inspectors working under the local health boards. This system of taking care of plumbing systems may be all right as far as it goes but it does not go far enough. In my opinion the only inspector who can make a thorough examination of any installation is the inspectors who are in charge of the by-law and who are conversant with plumbing systems from three feet outside to the roof line of any building.

Clause in By-laws

In almost every plumbing by-law in Canada you will find a clause reading as follows:

"The plumbing and drainage system in all premises shall be maintained by the owner at all times in good working order and in conformity with this by-law. In the event of any defect being discovered in such systems it shall, on the order of the plumbing inspector, be at once repaired and made good."

Yet, realizing the object of this particular cause, anyone who is conversant with this class of work knows that there are a great number of systems in almost every town in a poor state of repair and very little being done to overcome this nuisance. Defects in house plumbing might be brought to light with a careful examination by sanitary inspectors but it is hardly fair to expect them to take care of such systems as are installed in larger buildings such as hotels, office blocks, apartment houses and factories, where there are more or less changes taking place.

Reinspection

The reinspection of this work left to the care of plumbing departments may appear to some people a large undertaking especially in cities where there are a large number of connections and a small staff of plumbing inspectors kept busy on construction and alteration work but something could surely be done to help to lessen this condition which I am sure is becoming worse year after year. As a suggestion it might be well to advocate a clause in plumbing by-law calling for reinspection of all systems in houses where a change of tenants occurs. For instance on an application being received to turn on water in any premises other than when shut off temporarily a fee of fifty cents shall be charged for the reinspection of the plumbing; in the event of any defect being found it shall be made right by the owner of the building. Such a clause would take care of the defects which seem to be found more frequently in the class of buildings which are being occupied by new tenants almost every year. The larger installation is a more difficult proposition, especially in cities which are considerably built up, but as some check is necessary to keep this work in good repair a yearly inspection of the larger buildings would go a long way towards keeping such systems in a sanitary condition.

Almost in every city you will find evidence of plumbing systems in a poor state of repair. This condition of affairs will exist and year after year become worse until some system of reinspecting is enforced and carried out by some live plumbing inspectors. There is a great field for real work along this line and one is surprised to hear at times of assistant inspectors being laid off for lack of work when right at their very door there is work enough for a great many more inspectors than they usually employ. Apart from the work that these inspectors bring to the trade in general the main object is being attained and health of the public protected.

In 1919 a clause such as has been outlined in this article was brought before the city council of Saskatoon, with the result that it was embodied in the plumbing by-law that year. It might be interesting to quote a few figures in connection with this particular clause.

Case of Saskatoon

For the year ending December 31st, 1921, 1220 reinspections were made or an average of 4 inspections per day. I find that most of the transferring of meters takes place during the months of March and April in the spring and September and October in the fall of each year when construction work does not demand the attention of plumbing inspectors as it does in the summer months. The result of the 1220 reinspections which were made during 1921 was that 113 were found more or less defective and made good. These faulty systems are becoming less year after year as this method of maintenance is being carried out and apart from the good it does to the trade in general it also helps considerably in educating the people to the necessity of keeping plumbing installations in good repair. The plumbing in a building is installed for health, comfort and convenience of the occupants and must be viewed from a public health rather than a building construction standpoint. If the maintenance of this work is neglected and plumbing system allowed to become more a death trap year after year with no attempt to get it protected, why all the water and smoke testing of the new work, why all the time spent talking reconstruction, standardization or building up by-laws governing the installation of this work?

The master plumbers were among the first early pioneers in behalf of organized effort in getting together by-laws whereby plumbing was made a little more safe to the general public. These men have always recognized the need and nature of the pull together spirit in all things. There is no reason in the world why every master plumber should

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Legislation Affecting Heating Plants

Regulations Governing Heating Boilers Now Applying in Alberta, Saskatchewan and Manitoba May Shortly Be Adopted by Ontario and British Columbia—Welding Cracks in Boilers—Accidents to Compressed Air Tanks

Address by R. N. BLACKBURN, Provincial Chief Inspector of Steam Boilers, before the Fourth Annual Convention Sask. Society of Sanitary and Heating Engineers

LEGISLATION covering the operation of steam boilers has been in force in this province since the year 1898, in which year a Steam Boilers Act was passed by the legislature of the North West Territories (now the provinces of Alberta and Saskatchewan) providing for compulsory inspection of steam boilers. This act did not apply to low pressure heating boilers but an Act passed by the legislature in 1906 provided that boilers used for heating purposes in public buildings such as hotels, stores, offices, etc., should have safety valves set and sealed by a provincial boiler inspector so as to permit of no greater steam pressure being carried than 15 pounds per square inch. Failing this, or in case the owner desired to carry more than 15 lbs. per square inch pressure, all the provisions of the Steam Boiler Act should apply.

Owing to the very diverse standards of construction adopted by different manufacturers, it was soon realized that an adequate system of boiler inspection should commence with the supervision of the design and construction of steam boilers and that a minimum permissible standard of construction and workmanship should be adopted. After some correspondence with neighboring provinces a conference was held at Regina in December 1909, which was attended by representatives of five Canadian provinces and by a representative of the Canadian Manufacturers' Association on behalf of the boiler manufacturers. At this conference regulations were drawn up governing the construction of steam boilers and providing for the examination and registration of boiler designs. These regulations were at once adopted by the Provinces of Alberta and Saskatchewan, and in the year 1913, by the Province of Ontario. The regulations both in the design and workmanship of high pressure steam boilers, for which class of boilers they were primarily intended but they did not apply to low pressure steam heating boilers which at that time were exempted from supervision.

1913 Amendment

In 1913 an amendment to the Steam Boilers Act was passed by which low pressure heating boilers exceeding 20 h.p. in public buildings were brought under the provisions of the Act, but as the regulations for the construction and design of steam boilers then in force were not drafted with a view to their application to low pressure boilers, the activities of the department were limited to inspecting such boilers as were in actual operation and advising on the installation of new boilers when requested to do so.

A number of designs of low pressure boilers were submitted by manufacturers to the department for registration and approval, but the registration of all designs of low pressure boilers at this time was not insisted upon.

As the regulations in force were intended only for high pressure boilers it was necessary to modify them considerably for low pressure boilers and special rulings were made from time to time as occasion required.

In order to secure more uniformity an interprovincial conference was held at Toronto in June, 1914. At this conference the regulations were revised, a number of amendments and additions were suggested, special consideration being given to low pressure boilers and heating plants, but as a result of the subsequent outbreak of war with the consequent disorganization of industry which followed, the recommendations of the conference were not officially adopted by the governments of the provinces represented at the conference.

How Regulations Apply

In 1918 the provincial government of Manitoba invited the other Canadian provinces to send representatives to a conference at Winnipeg to formulate more complete regulations which would be acceptable to all the provincial governments. At this conference the regulations already in force in the provinces of Saskatchewan, Alberta and Ontario, were revised and extended, special attention being given to low pressure heating boilers. Suggestions made by manufacturers and others were considered and efforts were made to harmonize the sometimes conflicting views presented and to draft a code of regulations which would be acceptable to all parties interested. The regulations as drafted were submitted to the Boiler Code Committee of the Engineering Institute of Canada, the boiler section of the Canadian Manufacturers Association and others for criticism. A meeting was subsequently held at New Westminster, B.C., to consider replies received and to make any amendments that might appear desirable. Regulations covering air reservoirs and gas tanks were added and the regulations as now in use were approved for submission to the respective provincial governments for adoption. These regulations have been adopted by the Provinces of Alberta, Saskatchewan and Manitoba and I understand that they will very shortly be officially adopted by the Province of Ontario and probably also by the Province of British Columbia. Considerable interest has also been shown in the matter by the Provinces of Nova Scotia and Quebec but these provinces do not appear to have taken any official steps towards their adoption.

Although uniform regulations are now in force in three provinces of Alberta, Manitoba and Saskatchewan, there are some differences, in respect of their application. The regulations apply in all

New Officials of Provincial Society

Group of new officers elected by the Saskatchewan Society of Plumbing and Heating Engineers at the recent convention in Regina.

cases to high pressure boilers and in each province low pressure heating boilers in private dwelling houses are exempted, (with some slight exceptions, however, in Alberta,) but while the regulations apply to all low pressure boilers in public buildings, such as offices, stores, apartment blocks, theatres and the like in the Provinces of Alberta and Manitoba, in this province the regulations only apply at present to low pressure heating boilers of over twenty horse power, or in the case of twin boilers, when the combined capacity of the two boilers is over twenty horse power.

The regulations also apply in each province to compressed air or gas tanks and reservoirs having a capacity of three cubic feet or over, and carrying a pressure of more than seventy-five pounds per square inch, such as are used in garages, air filling stations, etc. Also to air or gas pressure tanks of less than 3 cubic feet capacity, but operated at a pressure exceeding 200 lbs. per square inch.

The regulations are divided into three parts. Part 1 applies to high pressure boilers and steam plants. Part 2 applies to low pressure boilers and heating plants and Part 3 applies to tanks and receptacles for compressed air and other gases.

Of Interest to Heating Engineers

While the regulations deal principally with the design and construction details of boilers, etc., and are therefore principally of interest to manufacturers of boilers, they also deal with a considerable number of matters in connection with low pressure heating plants, which I believe will be of interest to this meeting. In the case of high pressure boilers the regulations are very complete, and include specifications of materials entering into the construction of such boilers, full details as to design, provision of safety appliances, etc., and complete formulae for calculating the maximum allowable working pressure of each part of the boiler. There are also regulations covering boiler fittings and mountings, boiler settings and high pressure steam mains. This part of the regulations includes rules for repairs to oilers by electric, oxy-acetyline, and other autogenous welding processes and a brief notice of these rules may be of interest.

It may be noted that while cracks not exceeding 16 inches in length in plates in cylindrical furnaces of internally fired boilers, and cracks in flat stayed plates, may be welded, it is absolutely prohibited to weld cracks in shell plates or other parts of boilers subject to tensile stress. While it is admitted that such welds can be and often are successfully made, it has been found that at the present stage in the art such welds cannot altogether be relied upon and there appears to be no certain method of detecting a bad weld short of breaking the plate at the weld which of course is out of the question in a steam boiler. For the same reason air or gas pressure tanks carrying over 75 pounds per square inch working pressure and having the longitudinal seam welded by electric or acetyline welding processes are not permissible, but in small tanks where the shell plate is less than ¼ inch in thickness the longitudinal seam may be riveted and then welded or brazed to ensure tightness. The heads of air tanks may be welded or brazed to the shell provided that the heads are stayed with sufficient stays to carry the whole load on the heads or the ends of the shell may be turned over the flange of the head and then welded or brazed.

Welding Cracks in Boilers

Plates of boilers which are reduced in thickness by corrosion may be reinforced by autogenous welding, provided the reduction in thickness does not exceed a specified amount and the total area of reinforcement is within certain specified limits. Cracks in cast iron boilers built under this part of the re may not be reinforced by building up.

The requirements for low pressure steel boilers are naturally less stringent than for high pressure boilers. Steel boilers built under this part of the regulations are required to be stamped "For Heating purposes only" on the front head or the shell. Low pressure boilers, whether steel or cast iron, are required to be provided with safety valves, steam and water gauges, test cocks, blow-out valves and fusible plugs.

Provision is also made for a sufficient number of handholes and washout plugs. The experience of the Department has been that sufficient attention has not been given to this feature in the past and we have occasionally had some difficulty in convincing manufacturers of its importance. It is by no means unusual to find heating boilers so badly sealed inside that it is difficult to understand how users could get any heat at all.

It may be noted that considerably larger safety valves are required on low pressure boilers in proportion to their size than on high pressure boilers. The safety valve should in all cases be sufficiently large to prevent any serious accumulation of pressure, even should the boilers be fired with the steam valve closed, and it is evident that a much greater volume of steam will escape through a given orifice into the atmosphere with a pressure of 100 lbs. per square inch behind it, than would be the case with a pressure of only 5 lbs. Further, a given weight of steam at 5 lbs. pressure occupies more than five times the volume of the same weight of steam at a pressure of 100 lbs. per square inch. For both the above reasons therefore the low pressure boiler requires a larger safety valve than a high pressure boiler.

It is important that this be borne in mind when a second-hand high pressure boiler is utilized for low-pressure heating.

Safety Valve Needed

When a low pressure service connection for heating or other purposes is taken from a high pressure main, in addition to a reducing valve, a safety valve or valve of ample capacity must be placed on the low pressure side and set to release at a pressure not exceeding 5 pounds per square inch above the pressure to be carried on the low pressure system. The reducing valve must have a stop valve on each side of it to permit it to be isolated for repairs. The reducing valve must also be by-passed, the safety valves being located outside of the by-pass. A low pressure steam gauge must also be provided.

I may mention that through neglect of these precautions a radiator burst last year, severely scalding the manager of the office in which it was located and he was in consequence confined to his home for about four months. The office was heated by steam direct from a boiler which carried 100 lbs. pressure. Probably the valve to the heating system which was usually only slightly opened was opened a little more than usual on this occasion.

It may be noted that the maximum working pressure allowed on Cast Iron Boilers and Cast Iron Radiators of the usual pattern is limited to 10 lbs. per square inch but radiators specially constructed for a higher pressure may be used after designs have been submitted to the Department together with a section for examination and test if considered necessary.

Placing Stop Valves

When a heating plant consists of two or more boilers connected together stop valves must be placed as close to each boiler as possible on both the flow and return pipes. It is advisable in most cases to provide also swing check valves on the return pipes to each boiler.

When the heating plant consists of one boiler only, a swing check valve on the return pipe is usually desirable, but the Department does not in all cases insist upon its provision. Stop valves on flow and return pipes are not compulsory in this Province, where there is only one boiler, though I understand they are required by some provinces.

Where stop valves are not provided however, the flow and return pipes must have flanged connections, so that blank flanges can be inserted for the purpose of testing the boiler by hydraulic pressure.

Blow-off connections may be placed either on the boiler or on the return pipe as close to the boiler as possible.

The ends of steam mains when dropping into wet returns are required to be not less than 24 inches above the water line of the boiler and the main must be carried at least two feet beyond the last branch connections taken from the mains.

I need scarcely remind you that care must be taken in installing steam heating systems to lay out the steam piping so as to avoid the possibility of water hammer.

Part 3 of the regulations relates to the Construction and Installation of Tanks and Receptacles for Compressed Air and other Gases. There are now a large number of automobile service stations having small air compressor plants for inflating tyres and an examination of some of these plants some months ago revealed conditions which were somewhat disquieting. In many of these stations the tanks used for air receivers were quite unsuitable for the pressures carried, an ordinary galvanized kitchen range hot water reservoir being frequently used for this purpose. These reservoirs which are only intended for steady water pressures not exceeding 50 lbs. per square inch are usually made of low grade tank steel and are quite unsuitable for air pressures of from 100 to 150 lbs. per square inch which is the usual pressure carried. In many cases no safety valve is provided and there is nothing to prevent the pressure being raised to an excessive and dangerous amount by carelessness or inattention of the attendant who often has little knowledge

of the risks attending the operation of such plants. The air reservoir is frequently located in some out of the way corner and very little attention is ever given to it, so that the shell might be seriously reduced by corrosion without its condition being noticed. The reservoirs are seldom blown out, in some cases no provision is made for this purpose, and even when a drain is provided it is seldom used. While up to the present there have been no serious accidents involving loss of life or serious injury to attendants in this province, many such accidents have occurred in other places. There have been several explosions of these tanks in this province but fortunately they have not been attended with more serious consequences than damage to property. The most recent case which has come to my notice was an explosion of a compressed air tank in the Municipal Electric Light & Power Plant at Yorkton, which occurred last January. The air receiver which was 24 inches diameter by 4 feet 6 inches long was used in connection with a De La Vergne Semi-Diesel Oil Engine and was operated at a working pressure of 150 pounds per square inch. The shell was made of 3-16 inch steel plate and the ends, which were dished to a radius of about 24 inches, were ⅜ inch steel. The longitudinal seam of the shell was single riveted and brazed. The air receiver stood on one end in a vertical position on the engine room floor. The force of the explosion burst out the lower head and the remainder of the tank was projected clean through a concrete roof 8 inches thick to a considerable height above the building. An eyewitness of the explosion declared that the air tank was projected at least 100 feet above the top of the building. One of the power house staff who was standing near the tank when the explosion occurred was badly shaken up, but was not seriously injured. Fortunately owing to the manner in which the tank ruptured, practically the whole force of the explosion was directed in a vertical direction, otherwise there might have been a serious if not fatal accident. Even as it was the force of the explosion was sufficient to blow out every pane of glass in a large building.

Causes of Accident

The usual causes of accidents to compressed air tanks are (1) structural weakness of the tank, (2) excessive pressure, (3) deterioration due to external corrosion or wear and tear and (4) explosion by ignition of the oil vapour carried over from the oil used to lubricate the air compressor.

After an investigation of the evidence available including a careful examination of the exploded tank I have no hesitation in attributing the explosion to the last of the above causes, namely ignition of oil vapour in the tank. The internal pressure required to rupture the tank is estimated to have been at least 750 lbs. per square inch which is much greater than would be likely to have been generated by the air compressor.

When air at a temperature of 62 degrees Fahrenheit is compressed adiabatically (that is, without being cooled in any way) to a pressure of 150 lbs. per square inch, the air becomes considerably heated and its temperature would be raised to about 586 degrees Fahrenheit. If compressed adiabatically to 170 lbs. per square inch, the corresponding resultant temperature woul be 621 degrees Fahrenheit. These temperatures are sufficiently high to vapourize the lubricating oil used in the compressor and cause it to ignite and if the air receiver is already filled with compressed air and oil vapour a violent explosion will probably result. The air compressor cylinder is usually surrounded a water jacket, which is intended to keep the temperature of the compressed air below the danger point, or in the case of the small air compressors used in garages, the cylinder is ribbed outside so as to radiate the heat generated as rapidly as possible, but it is evident that if oil is allowed to accumulate in the air receiver, conditions might easily arise which would result in a serious explosion.

Safety Valves on Compression

The provincial regulations require all compressed air receivers to be provided with suitable safety valves to prevent excessive pressure. Also with a drain pipe fitted with a gate valve or cock to enable all accumulation of oil and water to be drained away. In addition to the above, air tanks are also required to be provided with a fusible plug at the highest point of the tank which will melt in case of any considerable rise of temperature before the temperature reaches the ignition point of the lubricating oil.

Every air and gas pressure tank is required to be inspected at least once in every two years by a provincial boiler inspector and an owner who operates or causes to be operated an air pressure tank without having in his possession a certificate of inspection is liable to a penalty.

I trust this brief summary of the provincial regulations affecting steam heating plants and air pressure tanks will have been of some interest to you and the department will have your hearty co-operation in its endeavours to reduce accidents in this province to a minimum.

Sewerage and Sewage Treatment

Compares Use of Fireclay Pipes, Concrete and Brick for Sewer Construction—Velocity of Flow in Sewers—Treatment of Sewage—Screening, Grit Chambers, Plain Sedimentation—Development of Heat by Action of Anaerobic Bacteria in Filter Beds

Address by R. H. MURRAY, Provincial Director of Sanitation, before Fourth Annual Convention Saskatchewan Society of Sanitary and Heating Engineers

THE word sewer is derived from an old French noun meaning a canal. In early times the only function of sewers was to carry away storm and surface water and it is only since the advent of the water closet that sewers have become identified with the conveyance of offensive wastes. The water closet made its first appearance about the year 1860. Fifty years after it had been patented, the City of London authorities woke up to the advantages of the water closet, and made its introduction in London obligatory. Other municipal authorities took a similar step, but none at that time realized to what extent the installation of the water closet was going to influence municipal expenditure and public works in the future. No one doubted but that the contents of water closets would continue to flow into private cesspools, from which they would be carted away from time to time.

The proximity of street drains however, and the labor and time which it was necessary to give to the emptying of cesspools caused many householders to construct an overflow from the cesspool to the nearest drain.

From the point of view of the individual, there was much to be said in support of this procedure, for the cesspools, through faulty construction and lack of attention were rapidly becoming a menace to the health of adjoining residents. On the other hand, the nuisance was merely being removed from private to public property and the street drains which had previously conveyed inoffensive rain water, were now open foul-smelling sewers.

The second stage of the problem of sewage disposal, namely the construction of under ground watertight sewers was therefore taken up by municipal authorities. For many years sewers were constructed regardless of system, the shortest route being taken to the nearest watercourse. No attempt was made to collect all the sewage of a community at one point, on the contrary it was usual to see sewers emptying their offensive liquids into a river at regular intervals in the course of its flow through a city. Further, the improved conditions of living resultant upon the adoption of the watercloset, heightened the popularity of the latter, which in turn was responsible for a greatly increased volume of sewage entering the rivers and streams.

In communities dependent upon the rivers for water supply epidemics of typhoid fever made their appearance with alarming persistence, and the authorities were once more confronted with a new problem, namely that of restoring the spent water supply of a community to a harmless condition before discharge into a natural water course.

The history of domestic sewage may therefore be recorded in three distinct stages dating from the introduction of the water closet.

(1) Its removal from the house to adjoining property.

(2) Its removal from adjoining property to a natural water-course.

(3) Its purification or treatment before discharge.

It is not within the score of this paper to deal with the first stage. The members of this Association are all aware of the progress that has been made in the design of water closets and the construction and ventilation of modern plumbing fixtures. The second and third stages consist of the establishment of sewerage and sewage treatment works respectively, and it is these two aspects of the subject that we will discuss here at greater length.

Sewerage

At the outset it may be permissible to differentiate between the words "sewage" and "sewerage," terms which are frequently mis-applied not only by laymen, but by engineers and those who ought to know better.

"Sewage" is the liquid waste which is conveyed in sewers, "sewerage" is a system of sewers in a community, or the process of drainage by sewers. Thus we speak of "sewage" treatment or disposal and a "sewerage" system.

The old form of sewer which still survives in many British cities to-day, consisted of a flag bottom, rubble sides and a flag top.

Obviously these sewers had no pretensions to water tightness, but were designed only (if the word "design" is applicable) to direct the course of surface water. In spite of this, sewers of this type were until recent years used extensively for the conveyance of domestic sewage, and the evils arising from this practice such as the accumulation of solids on the flat bottom of the sewer, and the escape of sewage and foul odors into the surrounding soil, rendered the construction of new and well-designed sewers an absolute necessity.

Various Materials Used

Modern sewers may be constructed of a variety of materials dependent upon the size, location and local conditions.

Fireclay, brick and concrete are however most frequently employed.

Fireclay pipes are used almost universally for sewers up to 24 in. diameter. The usefulness of fireclay was until recent years limited to this size of pipe, because sewers of greater diameter could be more economically constructed of other materials on the ground or in the trench. The manufacturers of fireclay pipes have however placed fireclay segments on the market for the construction of large circular and egg-shaped sewers, and this type of construction is being looked upon with favor by many engineers.

Fireclay sewer pipes are circular in form, and supplied in lengths from 2 to 3 feet with spigot and socket points. The pipes are jointed in the trench, a hemp gasket being tied around the spigot end of the pipe before placing it in the socket of the pipe already laid.

The joints are then made with cement mortar. First class fireclay pipes well and carefully laid present an ideal invert for the flow of sewage. Fireclay is not liable to disintegrate either from the attacks of chemicals in the sewage or alkali in the ground.

Concrete

Concrete sewers of small diameter have been used in past years but with indifferent success. In a small sewer—say 12 in. or 15 in. diameter it is impossible to get the pipes turned as truly as with fireclay, consequently the invert of the sewer as a whole is liable to be irregular and the joints unreliable. Further, concrete sewers are subject to disintegration, especially where the sewage level varies in the sewers—the alternate immersion of concrete surfaces in sewage and exposure to the atmosphere gradually causes the concrete to crumble away. In western Canada where there is so much alkali present in the soil, concrete sewers are subject to attack from without as well as within. Instances might be given in this Province where whole street lengths of concrete sewer pipe had to be torn up and replaced by fireclay pipe.

Concrete is a suitable material however for large sewers, that is, sewers over 24 in. in diameter. The problem of rendering concrete immune from the disintegrating effects of sewage or alkali is largely one of making the exposed surfaces impervious or waterproof, so that if a man can get inside the pipe to point up the joints and apply a waterproofing mixture, the objection to concrete is removed.

Concrete sewer pipes, where used in this Province should therefore be coated inside and out.

Brickwork

Brickwork is undoubtedly the best building material for large size sewers, and it is unfortunate that the cost of first class sewer bricks and labor renders this type of construction almost prohibitive in Western Canada. Brickwork is however extensively used for sewers in Europe. The invert or waterline of the sewers is frequently lined with a special quality of brick known as engineering brick.

Cast iron and steel construction is only used under special circumstances e. g. crossing under railways, rivers, buildings, etc., or in very wet ground.

Velocity of Flow in Sewers

If a sewerage system is to be efficient and free from offensive odors at manholes and other openings, what is known as a self-cleansing velocity must be maintained, that is a velocity of flow of at least 2 ft. per sec. The velocity is dependent upon three factors. (1) The smoothness of the invert of the pipe, (2) the cross section of the pipe or channel, (3) the grade of the pipe.

If proper care is taken in construction there should be no difficulty in ensuring a smooth invert. The cross section of nearly all modern sewers is circular, but where the flow of sewage is subject to considerable variation, the egg-shaped type of sewer is more suitable.

By fixing the minimum velocity in sewers one can determine the minimum grade for any size of sewer by use of tables or a simple formula; for instance we find that an 8 in. sewer must have a grade of 0.4 per cent., a 24 in. sewer a grade of 0.08 per cent., etc., to give a theoretical velocity of 2 ft. per sec.

In this province, where the country is so flat it is frequently impossible to obtain even these minimum grades in laying sewers, resulting in the deposit of solids and subsequently offensive odors. In such cases automatic flush tanks should be installed, so that the sewer may be flushed at regular intervals and all stranded solids refloated.

Junctions. All junctions, or connections between the private drains and the street sewer should be made in the direction of flow, that is by a Y and not by a T.

Bends. Should be avoided, and where they cannot be dispensed with in private drains should be as slow as possible. All street sewers should have manholes at every change of direction.

The maximum distance between manholes should be 300 feet.

Lampholes

In some cases where the line of the sewer is of necessity irregular, lampholes are constructed at changes of direction. These consist of say 12 in. fireclay pipes built vertically from the sewer and capped with a C. I. cover.

A lamp may be lowered down the pipe and by inspecting the sewer from either of the adjoining manholes any stoppage may be located.

Sewage

The sewage conveyed in sewers is of three kinds:

(1) Domestic Sewage.

(2(Storm Sewage.

(3) Industrial Sewage.

Domestic sewage may be defined as the spent water supply of a community. The total discharge from domestic sewers approximates the total water consumption.

Storm sewage is usually of a less offensive nature and consists of rain and surface water. Frequently storm sewage is very foul immediately succeeding a rain storm, when all the street washings and accumulated solids in the sewer are swept down; at such times storm sewage could be passed through a settling tank with advantage before discharge.

Industrial sewage or trade waste is discharge from creameries, breweries, tanneries and other industries. It is usually of a highly putrefying nature and should receive preliminary treatment before discharge in the domestic sewers.

There are two kinds of sewerage systems—the separate system and the combined system.

The separate system may be described as one of small diameter pipes which take care of the domestic sewage and in some cases roof water and cellar drainage, separate sewers being laid for storm water.

The combined system consists of large diameter sewers which carry all the above liquids.

There are advantages claimed for both systems, and each has its particular field of application.

At first sight the combined system would appear to be the most sensible inasmuch as one large sewer may be built and maintained more economically than two small sewers of the same total capacity.

But further consideration will bring out the following advantages of the separate system.

(1) Domestic sewage as it flows in any sewer is, more or less a constant quantity per day, capable of close estimation. It is therefore a simple mat-

ter to provide self-cleansing velocities at all times.

On the other hand, combined sewers are of necessity so large that at periods of dry weather flow the velocity is very slight and insufficient to prevent the deposit of solids.

(2) Where the sewage has to undergo treatment before discharge, the cost of the treatment works will be greatly reduced if the sewerage system is on the separate principle, and storm water which does not require elaborate treatment, is excluded from the works.

Hence the separate system is being almost universally adopted in Canada, and the combined system is being patronized chiefly by towns and cities on the sea coast, where expensive treatment works are unnecessary.

Sewage Treatment

We now come to the subject of sewage treatment. The evils attendant upon the discharge of raw or partially treated sewage into stream and watercourses which may be used as a public water supply are too well known to be enlarged upon here. There are certain acknowledged principles upon which the treatment of sewage has in late years been based—they may be enumerated as follows:

Sewage Treatment

Screening.

Grit Chambers.

Plain Sedimentation.

Septicisation.

Sedimentation accompanied by Septicisation.

Chemical Precipitation.

Broad Irrigation.

Filtration.

The Activated Sludge process.

Disinfection.

Screening

The sewage on discharge from the outfall sewer and before passing through the works is usually screened to rid it of any large floating substances such as sticks, rags, etc., which might seriously interfere with the operation of valves and other fittings. Screens are usually constructed of vertical bars of ½ in. or ¼ in. diameter, the spaces between bars varying from ⅜ of an inch to 4 in. Screens of finer openings than ⅜ in. are not advisable as they tend to collect too many solids. The whole screen is usually inclined at an angle of 60 deg. away from the direction of flow of the sewage.

The second process in sewage treatment, is that of settling the heavier mineral particles by means of grit chambers.

Grit Chambers

In this province, (Saskatchewan), and in other localities where sewerage systems are built on the separate principle and where the subsoil is for the most part clay, grit chambers are unnecessary, but where combined sewage has to be treated and in localities which have a subsoil of sand, mineral particles may be present in large quantities in the sewage and must be removed. This is accomplished by the simple expedient of decreasing the velocity of flow of the sewage to about 1 ft. per sec. This velocity allows the heavier mineral particles to settle while retaining the organic matters in suspension.

Grit chambers should be in duplicate and should be provided with means for removal of deposited mineral matter. The principle in grit chambers is that of plain sedimentation by reducing the velocity of flow.

Plain Sedimentation

Reference has been made to the deposit of solids in sewers if the velocity is allowed to fall below 2 ft. per second. When the sewage arrives at the treatment works this principle is made use of by discharging the sewage in large tanks and thus reducing the velocity to a minimum. By this method from 60 to 65 per cent. of the solids are precipitated. The most common type of plain sedimentation tanks is designed on the continuous flow principle; the sewage being discharged into tanks whose cross sectional area gives a velocity of not more than ½ in. per sec-

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ond. The total capacity of the tanks represents about 3 hours' flow of sewage, that is, a particle of sewage leaves the tanks 3 hours after entering. Th solids deposited accumulate in the bottom of the tank and should be drawn off by means of valves at least once every week to sludge beds, where the water is allowed to drain off the sludge, and the dried sludge is then dug into the ground. The bases of such tanks are inclined to the sludge valves and if the inclination of the base is not sufficient to allow the sludge to flow by gravity to the valves, floating arms are provided to draw off the top layers of water so that the bottom of the tank may be cleaned.

Septicisation

Perhaps no method of treatment is associated with sewage more than that of the septic tank. The septic tank was first introduced by Mr. Cameron, in Exeter, England in 1896. It consisted of a water tight tank of concrete or brickwork, from which light was excluded by a roof. The principle of this tank was to encourage the action of the anaerobic bacteria, i.e., those that live without oxygen. These bacteria attacked the solid organic matter and so the deposited solids were broken up, and the residue consisted of mineral particles and humus. A thick scum gathered on the surface of the liquid, due to the generation of large quantities of gas—the gases rising to the surface carried small particles of organic matter in suspension. For several years the septic tank was very popular inasmuch as the problem of dealing with the sludge was thought to be at least partially solved, but experience has shown that the septic tank was considerably overrated and that it has its limitations. Where the sewage has to be treated later by filtration one great objection to the septic tank was the large amount of suspended solids carried off by the effluent due to the heavy scum on the surface of the tank.

Septic tanks are usually constructed to take about 1 day's flow of sewage and the inlets and outlets should be submerged to provide for quiescence.

Sedimentation Accompanied by Septicisation

A marked advance of recent years in sewage treatment has been the adoption of what is known as the two-story or compartment principle — one compartment for sedimentation and the other for septic action. In operating the plain sedimentation tank as above described, it was found especially on this continent, that the frequent removal of sludge was accompanied in the hot summer months by very bad odors and the breeding of flies, and in the winter time when the temperature was low the sludge froze immediately on being discharged and could not be conveniently removed. On the other hand the solids if allowed to accumulate in the tank reached a depth of several feet and the amount of suspended organic matter leaving the tanks was very high. The solution of this difficulty was found by Dr. Karl Imhoff, who in 1907 installed a plant in the Emscher district on this two-story principle. The principle is as follows: The sedimentation tank is provided with a slot in the base through which the settling solids gravitate into a lower or septic compartment. The entrance from the upper to the lower compartment is trapped, thus preventing the gases generated in the sludge compartment, from rising to the surface of the settling compartment as is the case in ordinary septic tank. The upper compartment is designed to give about 3 hour's flow of sewage, and the lower compartment should provide storage for 6 month's accumulation of sludge. The liquid leaving the tank is therefore still fresh, although relieved of a large amount of suspended solids, and is free from any scum which might clog any further process of treatment.

The solids in the lower compartment are retained under the conditions of the septic tank and the organic matters are reduced by the action of the anaerobic bacteria to an inoffensive and non-putrescible residue similar to humus, and if discharged after a period of six months will be free from offensive odors and when dried can be spread or dug into the ground.

Chemical precipitation is rapidly becoming a matter of history in sewage disposal. The process consists of add-

ing some precipitant to the sewage such as lime, alum or salts of iron before it enters the settlement tank.

The solid particles of sewage are carried to the bottom of the tank by the descending fine particles of lime or by the coagulating action of other substances and the upper liquid is thus considerably clarified. Precipitation gives an effluent freer of organic matter than that obtained by plain sedimentation, but evidence goes to show that the improvement in quality is not commensurate with the cost involved.

Broad Irrigation

"Broad Irrigation," "Sewage Farming," and "land treatment" are terms used to describe the discharge of sewage on to land at such a low rate of flow as will not interfere with the raising and harvesting of crops. For more than a generation in England, land treatment was considered one of the principal methods of sewage disposal. With the growth of cities however, it has been found impossible to obtain sufficient land for the purposes—one acre being required for every hundred people connected with the sewers. In a province such as ours where we have a subsoil which is for the most part impervious the adoption of irrigation for any but very small plants would result in complete failure.

In America irrigation is not practised to-day in such a way as to give satisfactory results in sanitary disposal of sewage. Objections to the method have increased rather than decreased. Such objections include odors, prejudice against the growing of vegetables which are eaten raw, and the transmission of disease by flies and organisms. It must also be evident that our winter climate renders this process impracticable.

Filtration

Even with the most efficient settling tanks the effluent contains large quantities of organic matter in solution which would quickly putrefy if not supplied with the required oxygen.

These particles must be rendered stable before discharge unless the river into which the effluent is discharged is sufficient in volume to provide the necessary oxygen, and for this purpose oxidising filters are used.

Filter beds are of two types—contact filters and sprinkling filters. The filter material is similar in each case and should consist of crushed stone, clinker, broken bricks or any other material which is hard, comparatively rough and not liable to disintegrate. The most suitable size of media is from 1½ in. to 3 in. and the beds should be of a depth of 7 feet.

Contact Filters

Contact filters are so named because the liquid is run into the beds with the outlet closed, and is allowed a period of contact with the filter media for say two hours—then run off suddenly, and the bed allowed a similar period for aeration.

This method of filtration, while attended with some success, has given place to filtration by sprinkling, a method which not only permits of more liquid being handled, but gives a greater efficiency in the effluent.

Contact filters are, however, suitable for small installations.

Sprinkling Filters

In filters of this type the liquid is sprinkled by some mechanical device over the entire surface of the filter bed and allowed slowly to percolate to the bottom of the bed. For the first few weeks of operation of a new bed the media acts merely as a strainer for retaining the solids in suspension, but after use for some time the surface of each piece of filter media becomes coated with a film which harbors multitudes of anaerobic bacteria. These bacteria feed upon the organic matter converting it to nitrates and rendering it stable. Oxygen is an absolute necessity to the proper operation of the beds otherwise anaerobic bacteria will develop and reduce the efficiency. Filter beds should be provided with well drained floors to carry off the liquid and to give free access to the air.

The surface area of sprinkling filters should bear a direct relation to the population using the sewers, i. e. to the amount of oxidisable matter present in the sewage.

For first class effluents this ratio should be 1 acre per 19,000 people or 255 square yards per 1,000 population.

Temperatures in Sewage Filter Beds

Location. Date.	1. Outside temp. of air.	2. Temp. of air in filter beds.	3. Temp. of sewage as sprinkled on filter beds.	4. Temp. of effluent from filter bed.	Difference between 3 and 4.
	Degrees Fahrenheit				
Weyburn—					
1922					
Jan. 4th	–20	30	44	43	–1
Jan. 11th	24	40	44	43	–1
Jan. 18th	– 8	36	44	43	–1
Jan. 25th	27	40	44	43	–1
Weyburn average, –1°.					
Regina—					
Jan. 9th					
Filter No. 1	29.5	46	54.5	50.5	–4
Filter No. 3	29.5	48	54.5	54	–0.5
Filter No. 4	29.5	46	54.5	54	–0.5
Jan. 16th					
Filter No. 1 – 2		39	57	56	–1
Filter No. 2 – 2		44	57	55	–2
Filter No. 3 – 2		43	57	56	–1
Filter No. 4 – 2		41	57	55	–2
Jan. 23rd					
Filter No. 1	–20	40	53	53	Nil
Filter No. 2	–20	40	53.5	53	–0.5
Filter No. 3	–20	40	53	53	Nil
Filter No. 4	–20	40	53.5	53.5	Nil
Jan. 30th					
Filter No. 1	–13	42	54	53	–1
Filter No. 2	–13	42	54	53	–1
Filter No. 3	–13	42	54	53	–1
Filter No. 4	–13	42	54	53	–1
Regina average, –1.03°.					
Moose Jaw—					
Jan. 1st	– 4	38	46	46	Nil
Jan. 2nd	8	38	46	45	–1
Jan. 3rd	–15	34	44	44	Nil
Jan. 4th	–16	34	44	44	Nil
Jan. 5th	–13	34	44	44	Nil
Jan. 6th	–13	36	44	44	Nil
Jan. 7th	0	36	44	44	Nil
Jan. 8th	2	34	42	44	2
Jan. 9th	20	40	44	44	Nil
Jan. 10th	2	38	43	45	2
Jan. 11th	10	40	43	45	2
Jan. 12th	16	38	42	45	3
Jan. 13th	20	40	43	45	2
Jan. 14th	10	34	42	45	3
Jan. 15th	– 4	31	42	45	3
Jan. 16th	– 4	32	42	44	2
Jan. 17th	–18	32	38	43	5
Jan. 18th	–18	31	38	42	4
Jan. 19th	– 4	34	40	43	3
Jan. 20th	–12	32	40	42	2
Jan. 21st	–20	32	40	42	2
Jan. 22nd	?	30	37	40	3
Jan. 23rd	–34	30	40	41	1
Jan. 24th	–18	32	38	42	4
Jan. 25th	–12	34	40	42	2
Jan. 26th	0	38	44	45	1
Jan. 27th	14	38	42	44	2
Jan. 28th	8	38	42	44	2
Jan. 29th	– 2	38	42	42	Nil
Jan. 30th	–22	32	38	42	4
Jan. 31st	–25	32	38	42	4

Moose Jaw average, +1.8°.

Average decrease in temperature in three plants, .07°.

Methods of Distribution

These methods include perforated trays, revolving distributors, travelling distributors, and fixed sprays.

Humus Tanks

The organic matter which is retained by the filter media and which is oxidised is discharged from the beds from time to time in the form of humus. Final settling tanks should be provided for the retention of this sludge, otherwise the bed of the river or stream may become loaded with this deposit.

Activated Sludge Process

A combination of the two processes of sedimentation and oxidation has been evolved in recent years and the activated sludge process which was unknown by that name eight years ago is already passing out of the experimental stage.

The process consists of blowing air for several hours through sewage held in tanks, during which the suspended matters collect in flocculent masses which resemble pieces of sponge, and come into contact with every part of the liquid.

These spongey particles harbor great numbers of bacteria which oxidize the organic matter and convert the nitrogen into nitrates.

The process is specially applicable to large centres of population where suitable land for sewage disposal is difficult to acquire, and where the additional cost of introducing air under pressure to the works may be offset by the omission of filter beds and by the comparatively small area of land required for treatment of the sewage.

Disinfection

The object of all the foregoing processes of treatment has been to remove from the sewage as much of the solids as possible and to convert the remaining liquid into a stable effluent which will not putrefy or give offence when discharged. In other words the processes above described have been for the reduction of suspended solids and the creation of a condition of non-putrescibility. Although a certain percentage of the bacteria will be eliminated with the retention of the solids, none of the above processes are calculated to destroy the bacteria, and it is possible that a clear odorless and stable effluent might be charged with disease-bearing germs capable of creating an epidemic of typhoid fever.

There are two ways in which the disease germs may be eliminated from or

(Continued on page 35)

Patterns For Paneled Diagonal Pipe

Written for Sanitary Engineer by O. W. KOTHE, Principal St. Louis Technical Institute, St. Louis, Missouri

LEADER pipes as well as vent pipes, placed on the outside of the building, are often ornamented by making a set in member, and over this, panel bars are planted.

This helps ornament the pipe, and takes away the plain monotonous effect.

However, to lay out the pattern and make a suitable working drawing, first draw the side elevation with a wall line as M-N-O-P.

Next develop the plan or section through top I, and place the plan on an angle as E-F.

After which, detail the lower section and draw the diagonal lines as shown.

The dotted lines a-b; e-d, also f-g and i-j are panel bars, built in over the miters, so a straight effect is produced in the front.

Observe the elevation miters are bisected to the angles of the wall lines, and give the lines N-c and O-h.

Now as both the elevation and the plan are foreshortened a diagonal elevation must be developed.

To do this, we place a strip in the position X and from each point in elevation, miters project the altitudinal heights to the strip X as shown.

We now place this strip in the position X′ so it is at right angles to E-F of plan.

From each point in this strip X we square out lines until they are parallel with E-F.

Then from each point in plan, taking in each of the corners in the top and bottom sections, we project lines so they are at right angles to E-F of plan.

Where these intersections take place, we draw the shapes of the top and bottom section in the diagonal elevation.

After which, we join the side lines and that gives us our true position of the double offset.

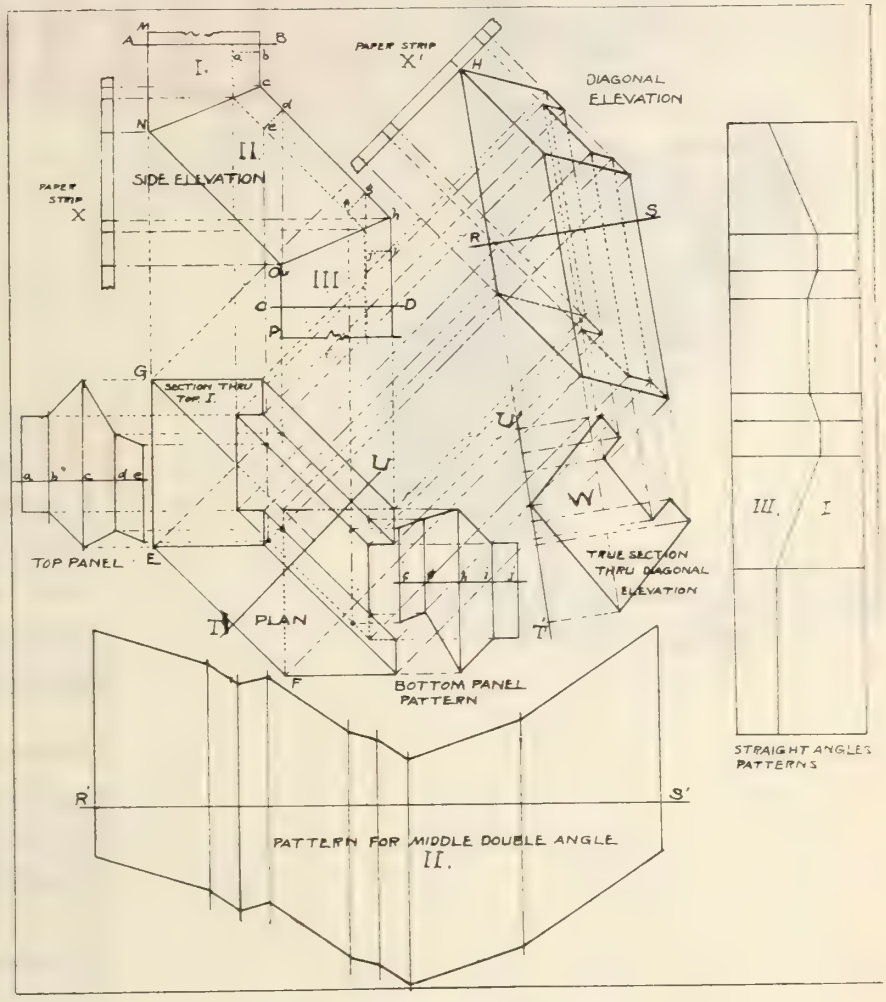
The next step is to develop a true section through the diagonal elevation, giving the exact outlines how the metal must be formed, both in shape and in girth, as shown at W.

To do this, we draw a set line square to E-F as T-U.

We pick all the width of plan lines along this line T-U of plan and transfer them on the extended diagonal elevation line, as T′-U′.

Now from each point in the diagonal elevation extend the lines parallel and from each point in the line U′-T′ square out lines to intersect those from elevation and this will enable you to draw the shape W through the intersections thus established.

To set out the patterns for the various parts, the straight angles I and III



Patterns for Paneled Diagonal Pipe.

are set off the same as any straight angles where the girth is taken from the section through top I and the distances are picked from line A-B or else from C-D of elevation.

But for the middle pattern, we must pick the girth from the true section W, and set it off on the line R′-S′

Through each of these points draw stretchout lines and then draw any set line in diagonal elevation as R-S.

Use this set line as a base line and pick the length of each line from diagonal elevation and set off on similar numbered line in pattern.

At the intersections thus established draw the miter line as shown and this gives the pattern for the middle angle.

Now to lay off the panels which fit over the miters we pick the girth from side elevation as a-b-c-d-e and set to the left of plan as a-e.

In the same way pick the girth f.g.h.i. j. from the side elevation for the lower panel and set as f-j to the right of plan.

From each of these points in elevation drop lines into plan to intersect those lines of similar number shown by the heavy dots in plan.

From these points square over lines into stretchout and this enables drawing the miters for the patterns as shown. Laps must be allowed extra on all edges for seaming.

INCOME TAX BOOKLET

The Canadian Debentures Corporation, Ltd., have issued a booklet entitled "Dominion Income Tax Questions and Answers," the work of a tax specialist which simplifies for any individual, company or estate the preparation of the necessary income tax return slip. The booklet should prove of particular interest to business men. Readers of Sanitary Engineer may secure copies of this booklet by writing to Canadian Debentures Corporation, Limited, 36 King Street, East, Toronto, and asking for booklet No. 37A.

Bucking

BUCKING Bronchos and bucking business don't seem to have much in common on the surface—but both represent hard work, both require a firm hold on things, skill, patience, resourcefulness, and last but not least aggressive methods.

Modern Business requires all these qualities in the man who would be a success in business—especially the plumbing business.

There is a rich field awaiting the Sanitary Engineer who will use aggressive methods in going after business—a rich field which only aggressive salesmanship will develop.

Right in your district there are probably hundreds of homes where up to date bathroom equipment is needed—all sorts of plumbing fixtures that go

SUPERIORITY PURITY DURABLE AS THE PYRAMIDS

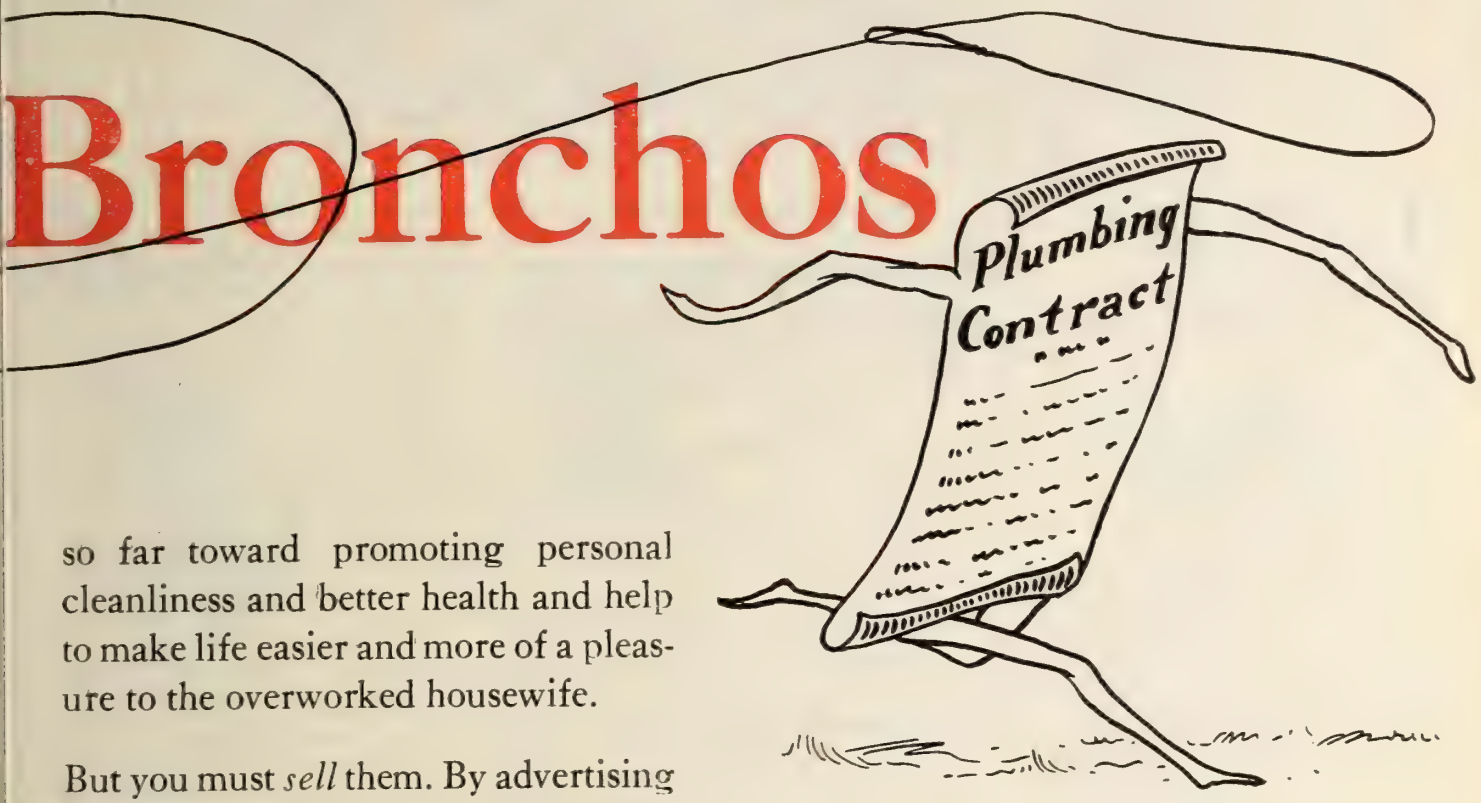
Port Hope Sanitary

Factories:
PORT HOPE, ONTARIO

Toronto Show Rooms:
119 KING ST. EAST

Winnipeg Office:
405 TRIBUNE BLDG.

Bronchos



so far toward promoting personal cleanliness and better health and help to make life easier and more of a pleasure to the overworked housewife.

But you must *sell* them. By advertising and personal calls you must awaken their interest and desire to buy.

By using the attention-getting cuts which we have had prepared for you, in your local newspapers; by keeping up a continual bombardment on your prospects with attractive booklets, circulars, blotters and catalogs which we will supply for the asking, you will be following the road that leads to increased sales.

Let's work together to make this year Nineteen Plenty Two.

Mfg. Company, Limited

Head Office:
1012 ROYAL BANK BLDG., TORONTO

Montreal Office:
604 SOUTHAM BLDG.

SUPERIORITY PURITY DURABLE AS THE PYRAMIDS

Spring Advertisements for Plumbers

Many Lines of Plumbing and Heating Fixtures, Tinsmithing, Ventilating, etc. Dealt With Effectively in Newspaper Ads by Plumbing and Heating Engineers Throughout Canada—Some Helps for Writing the Spring Advertisements

THE SPRING and early summer season provides a splendid opportunity for the plumber to advertise various lines in a seasonable manner which will appeal to many prospects. The layouts shown herewith indicate the manner in which progressive plumbing and heating firms are advertising in their local newspapers, and these together with the following descriptions of copy being used by others should be of assistance to the sanitary or heating engineer who wishes to alter the "copy" for his ads, or to plan a special advertising campaign.

A. Moffatt, plumber of Barrie, Ont., points out that sanitary plumbing is fine but it must be maintained in clean, careful working condition, and makes an argument for installing the best equipment procurable and then keeping it in best shape. "Sanitary equipment is only sanitary if looked after," he states.

"Have your bathroom fitted up complete. There are so many little things such as towel, paper, tumbler and tooth brush holders, soap dishes, glass shelves with nickel brackets, etc., that go to make your bathroom comfortable and convenient," states the ad by J. S. Mitchell & Co., Sherbrooke, Que., continuing, "Why not a medicine cabinet? We have them in both bevelled and plain mirror door. If you are contemplating building or installing a new bathroom it will be to your advantage to consult us and let us figure with you."

Solving Heating Problem

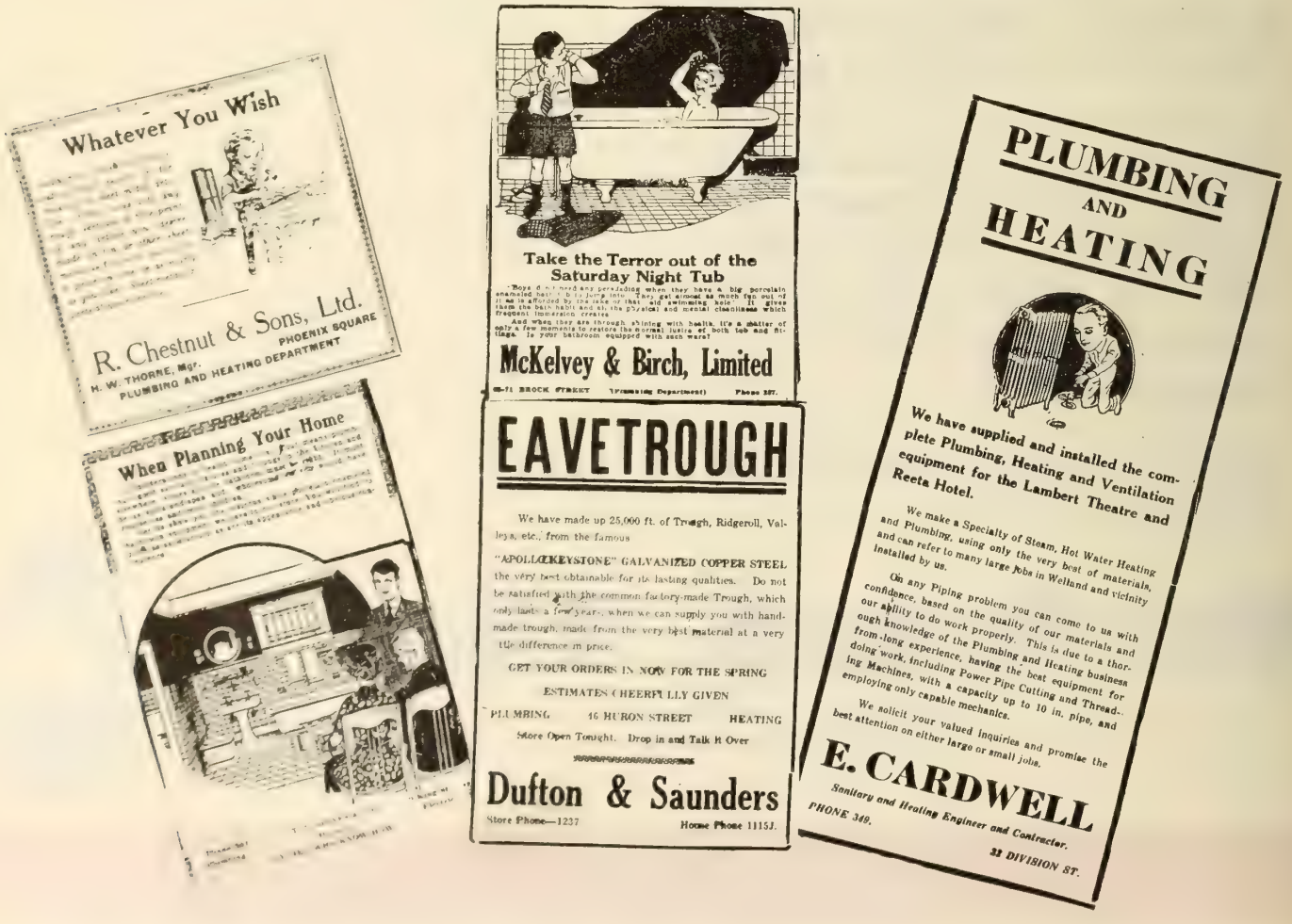
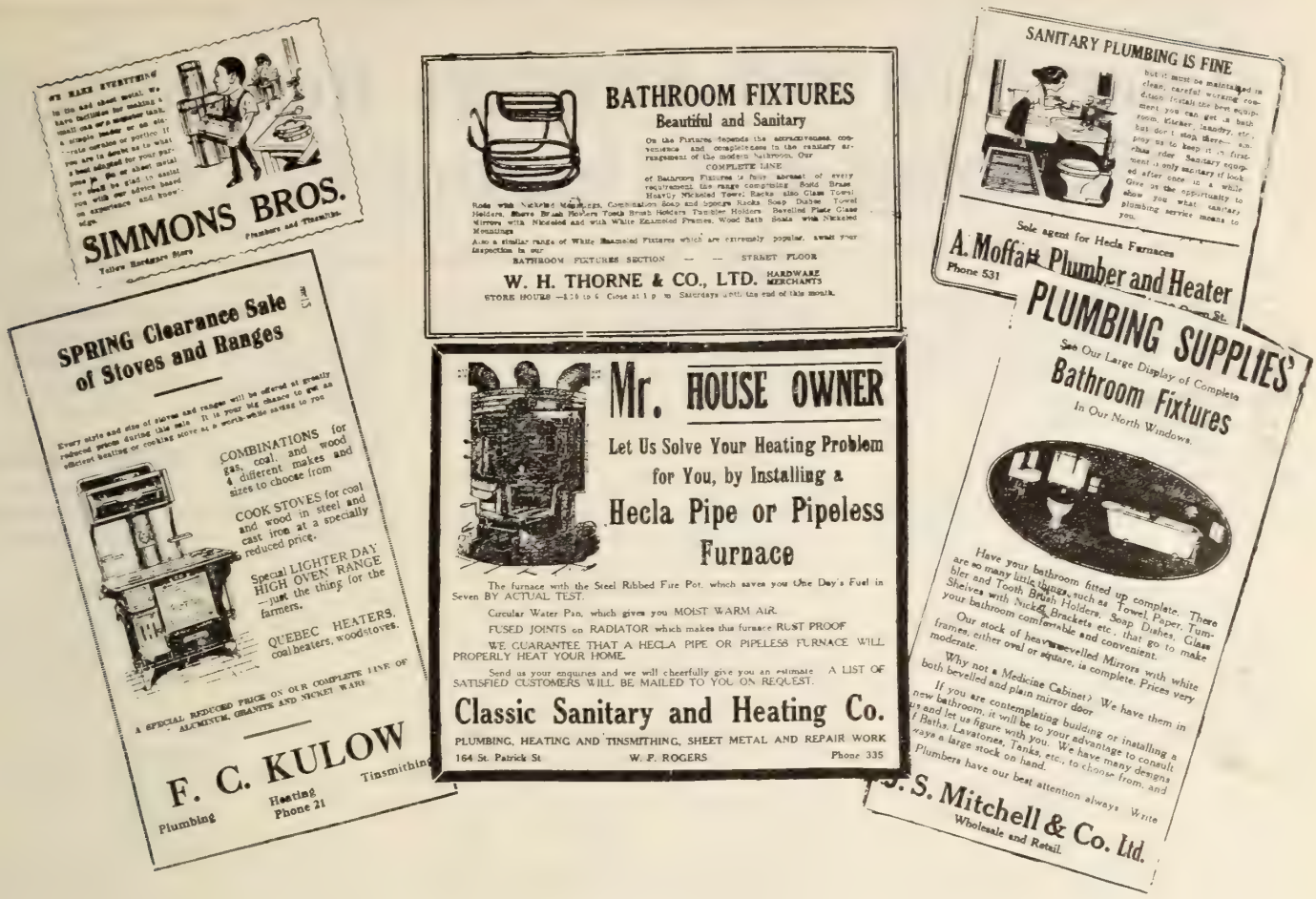
Classic Sanitary and Heating Co., Stratford, advertise to Mr. House Owner to let this firm solve the heating problem with the installation of pipe or pipeless furnace.

A Spring clearance sale of stoves and ranges in every style and size at greatly reduced prices, is advertised by F. C. Kulow, plumbing, heating, etc., Port Colborne, Ont.

The tinsmithing department is dealt with in the ad by Simmons, Bros., Kingston, Ont., which states, "We make everything in tin and sheet metal. We have facilities for making a small can or a monster tank, a simple leader or an elaborate cornice or portico. If you are in doubt as to what is best adapted for your purpose in tin or sheet metal we shall be glad to assist you with our advice based on experience and knowledge."

An ad devoted to bathroom fixtures by W. H. Thorne & Co., St. John, N. B., reads, "On the fixtures depends the attractiveness, convenience and completeness in the sanitary arrangement of the modern bathroom. Our complete line of fixtures is fully abreast of every requirement."

The policy of mentioning certain installations which have been completed by the firm is followed in the ad by E. Cardwell, Welland, Ont., which states, "we have supplied and installed the complete plumbing, heating and ventilating equipment for the Lambert Theatre and Reeta Hotel. We make a specialty of steam, hot water heating and plumbing, using only the very best materials, and can refer to many large jobs in Welland vicinity installed by us. On any piping problem you can come to us with confidence, based on the quality of our materials and our ability to do work


Whatever You Wish
R. Chestnut & Sons, Ltd.
PHOENIX SQUARE
H. W. THORNE, Mgr.
PLUMBING AND HEATING DEPARTMENT
When Planning Your Home
Take the Terror out of the Saturday Night Tub
McKelvey & Birch, Limited
EAVETROUGH
We have made up 25,000 ft. of Trough, Ridgeroll, Valleys, etc., from the famous
"APOLLO-KEYSTONE" GALVANIZED COPPER STEEL
the very best obtainable for its lasting qualities. Do not be satisfied with the common factory-made Trough, which only lasts a few years, when we can supply you with hand-made trough, made from the very best material at a very little difference in price.
GET YOUR ORDERS IN NOW FOR THE SPRING
ESTIMATES CHEERFULLY GIVEN
PLUMBING 46 HURON STREET HEATING
Store Open Tonight. Drop in and Talk It Over
Dufton & Saunders
Store Phone—1237 Home Phone 1115J.
PLUMBING AND HEATING
We have supplied and installed the complete Plumbing, Heating and Ventilation equipment for the Lambert Theatre and Reeta Hotel.
We make a Specialty of Steam, Hot Water Heating and Plumbing, using only the very best of materials, and can refer to many large jobs in Welland and vicinity installed by us.
On any Piping problem you can come to us with confidence, based on the quality of our materials and our ability to do work properly. This is due to a thorough knowledge of the Plumbing and Heating business from long experience, having the best equipment for doing work, including Power Pipe Cutting and Threading Machines, with a capacity up to 10 in. pipe, and employing only capable mechanics.
We solicit your valued inquiries and promise the best attention on either large or small jobs.
E. CARDWELL
Sanitary and Heating Engineer and Contractor.
PHONE 349. 32 DIVISION ST.

SIMMONS BROS.
Tinsmiths and Plumbers
Tellers Hardware Store
BATHROOM FIXTURES
Beautiful and Sanitary
W. H. THORNE & CO., LTD.
HARDWARE MERCHANTS
SANITARY PLUMBING IS FINE
A. Moffat Plumber and Heater
Phone 531
Sole agent for Hecla Furnaces
SPRING Clearance Sale of Stoves and Ranges
COMBINATIONS for gas, coal, and wood
COOK STOVES for coal and wood
QUEBEC HEATERS, coal heaters, woodstoves.
F. C. KULOW
Plumbing
Heating
Phone 21
Tinsmithing
Mr. HOUSE OWNER
Let Us Solve Your Heating Problem for You, by Installing a
Hecla Pipe or Pipeless Furnace
Classic Sanitary and Heating Co.
PLUMBING, HEATING AND TINSMITHING, SHEET METAL AND REPAIR WORK
164 St. Patrick St
W. P. ROGERS
Phone 335
PLUMBING SUPPLIES
See Our Large Display of Complete Bathroom Fixtures
In Our North Windows.
J. S. Mitchell & Co. Ltd.
Wholesale and Retail.

properly. This is due to a thorough knowledge of the plumbing and heating business from long experience, having the best equipment for doing work including power pipe cutting and threading machines with a capacity up to 10 in. pipe and employing only capable mechanics."

Appeals to the Boys

"Take the Terror out of the Saturday night tub," says the ad by McKelvey & Birch, Ltd., Kingston, Ont., continuing, "boys don't need any persuading when they have a big porcelain enamelled bath tub to jump into. They get almost as much fun out of it as is afforded by the lake or that 'old swimming hole.' It gives them the bath habit and all the physical and mental cleanliness which frequent immersion creates. And when they are through, shining with health, it's a matter of only a few moments to restore the normal lustre of both tub and fittings. Is your bathroom equipped with such ware?"

"When planning the home," says the ad by T. J. Minnes & Co., Brantford, Ont., "considerations of health come first. That means plumbing—good sanitary fixtures and fittings in the kitchen and elsewhere. Above all, the bathroom must be right. It must be as spick and span, and wholesome as you would have yourselves and your children. Let us show you the lustrous white porcelain enamelled bathroom equipment we have in our store. You will find its price as satisfactory as are its appearance and obvious convenience."

Dealing with eavestrough, the ad by Dufton & Saunders, Stratford, Ont., says, "we have made up 25,000 ft. of trough, ridgeroll, valleys, etc., from the famous. . . . . .galvanized copper steel, the very best obtainable for its lasting qualities. Do not be satisfied with the common factory-made trough which only lasts a few years when we can supply you with hand made trough, made from the very best material at a very little difference in price. Get your orders in now for the spring."

SEWAGE AND SEWAGE TREATMENT

(Continued from page 30)

destroyed in an effluent, namely by sand filters or by chlorination.

The former is a costly process and is equivalent to slow sand filtration of water—it is rarely used and should be discarded in favor of disinfection. This is accomplished by applying a solution of chloride of lime to the effluent. Experience has shown that a very small quantity of chlorine, 5 parts of available chlorine to 1,000.000 parts of water will destroy about 95 per cent. of the bacteria present. The germicidal action of the chlorine is indirect. as it acts on the organic matter by the liberation of nascent oxygen in the water.

Development of Heat by Action of Aerobic Bacteria in Filter Beds

At the Annual Convention of this society held in Moose Jaw last year when the tendency of subsurface disposal fields to freeze was under discussion, the writer was asked if the heat developed by the action of aerobic bacteria would not prevent the freezing of subsurface fields.

The reply then given was that any increase in temperature due to such action would be negligible, but the convention was promised some definite data on this subject at its next meeting.

Through the courtesy of the City Engineers of Regina and Moose Jaw and of the Works Superintendent of Weyburn some data were secured for the information of the members of this association.

While the conditions at the sewage disposal plants of these cities are not those of the disposal field on the farm, the point in question, namely the increase in temperature due to the action of aerobic bacteria, is clearly answered, and the increase is found to be a negligible quantity in one of the plants and in the other two plants a minus quantity.

MONTREAL WILL HAVE DAYLIGHT SAVING

At a meeting of the Montreal City Council this week a resolution was adopted whereby Montreal will have daylight saving again this summer from April 30th to October 1st. Although some opposition has been given from different quarters in recent weeks, the Council passed a resolution by a vote of 23 to 10, and the City will now notify the general public of its intention to adopt the new time for the period mentioned.

Questions and Answers Regarding Plumbing and Heating Practice

SEWAGE DISPOSAL—QUESTIONS

Editor, Sanitary Engineer, Toronto:—

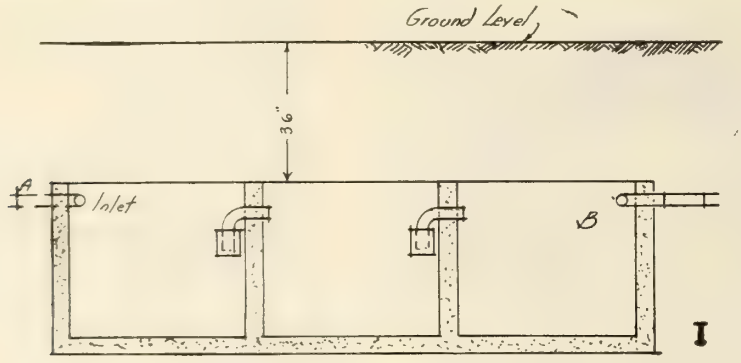
Would you kindly give me any information or suggestions on the following:—I am enclosing a rough sketch of a faulty septic tank. There is no syphon in the third chamber, only an overflow which leads to a disposal bed.

The reason the tank is built so far underground is to take care of the toilets in basement of the building. What I wish to do is to discharge the contents of the 3rd chamber, (which is practically clear water) through the drain B, automatically say, once a day. Would a Morrison cellar drainer do it, or would you give me the name of a suitable lift. I have water pressure system to work off. Pressure varies from 10 lbs. to 35 lbs.

Robt. Broom.
Burlington, Ont.

Answer

Although the liquid in chamber B may have the appearance of clear water, it is by no means harmless to animal life.



I

In fact, this liquid is several degrees more poisonous than is raw sewerage and requires further treatment before it is discharged to where it may become a source of danger to health or life.

All of the time that the sewage has been in the various chambers of the septic tank it has been subject to the action of anerobic bacteria and as a result the effluent contained in chamber B is heavily charged with these poisonous germs.

These germs must be destroyed by the action of aerobic bacteria, and because no aerobes can live when deprived of light and air there can be no aerobic action in any part of this underground tank. Therefore it becomes necessary to make arrangements so that the effluent in chamber B may be discharged into a system of field tiles set close enough to the surface of the ground so as to be in the field of aerobic activity.

The ground within a foot or eighteen inches of the surface contains aerobic bacteria. These will thrive and multiply when properly fed, but can be easily drowned by a constant discharge from the septic tank.

It is well to design the dosing-chamber so that the tile laterals in the disposal field are charged with the effluent once in every six hours, so that the aerobic bacteria may have intervals of time in which to rest and multiply.

If we were to re-model the system of sewerage disposal, as outlined in your inquiry, we should raise the laterals to within a foot or so of the earth-surface; provide a dosing chamber, and set the automatic cellar drain so that it would discharge the liquid from B into the dosing chambers. And it would be well to arrange so that the discharge would take place about every six or eight hours.

The cellar drain mentioned in your letter may be used for this purpose.

It will be necessary to provide for more laterals in the disposal field than would be necessary were there only to be the effluent from the tank discharged therein. The extra laterals are required because of the fresh water used in the operation of the cellar-drain.

You do not state the number, or class, of fixtures to which this system is connected, nor do you give the dimensions of the tank. If you will send us this particular we will show in detail the setting for the cellar-drain, the dosing-chamber and the tile laterals in the disposal field.

On several occasions the writer has been asked for suggestions in cases similar to this one of your difficulty, and in the majority of instances (when it has been possible to do so) we have had the toilets removed from the basement and set at a level higher than that of the septic tank and disposal field. In other cases we have arranged so that the effluent from the septic tank was exposed to the air during its passage through the filtering beds which were set in a secondary chamber.

QUANTITY OF WATER ALLOWED

Editor, Sanitary Engineer:

1.—What quantities of water per head of population are generally allowed in planning waterworks systems?

2.—Will a septic tank work well in low wet land?

3.—What time is required to instal a five-fixture country plumbing system?

4.—How much does the average city fulsh tank hold?

J. Meiklejohn,
Warkworth, Ont.

* * * *

Answers

1.—The quantity of water used per person varies according to local conditions and regulations.

Some cities allow 100 gallons and upwards per head per day. Others as low as 50 gallons per head per day, but would say with the case under discussion about 30 gallons per head would be sufficient for domestic purposes, same including bath, toilet, washing, drinking, etc., therefore for a family of 3 the daily consumption would be 90 gallons, for 4 persons 120 gallons, for 6 people 180 gallons. Should no conveniences be installed and it is purely a drinking, cooking and washing proposition this quantity can be reduced by half.

The cistern in question, 3 ft x 6 ft. x 4 ft. full to the top would hold approximately 450 gallons and would last a a family of 3, on the above capita basis, 5 to 10 days respectively.

2.—With reference to a septic tank working satisfactorily in low wet land the writer would say that the tank will work equally well in any soil, but the clarified sewage discharged from same has to be filtered and light loaming soil is the best condition possible, but in clay or heavy wet soils the pipes are laid further apart and the trenches and pipes surrounded with ashes, broken stone or loose material for filtering and aeration purposes, so the pipes must not be laid too deep as the purification depends upon the air taken or sucked down from the surface.

3.—The usual time required to instal a five fixtured country plumbing system varies considerably, but would say an average would be from 7 to 10 days providing all material was on the site.

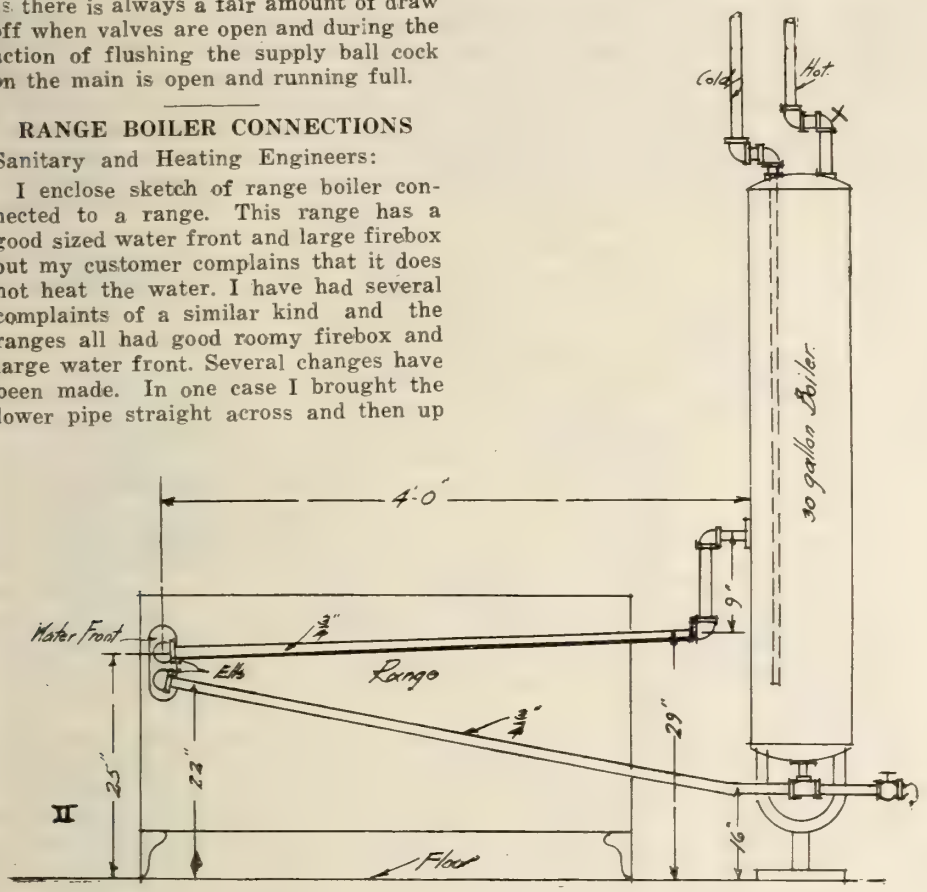
City plumbers would do this work in 5 to 6 days on an average a lot pending on the men employed.

4.—The average city flush tank holds 5 gallons of water, and when flushed discharges or uses about 6 or 7 gallons, as there is always a fair amount of draw off when valves are open and during the action of flushing the supply ball cock on the main is open and running full.

RANGE BOILER CONNECTIONS

Sanitary and Heating Engineers:

I enclose sketch of range boiler connected to a range. This range has a good sized water front and large firebox but my customer complains that it does not heat the water. I have had several complaints of a similar kind and the ranges all had good roomy firebox and large water front. Several changes have been made. In one case I brought the lower pipe straight across and then up to the water front, sometimes this cures the trouble and sometimes it does not. I would appreciate your advice.



H. J. Andrews,
Orillia,
Ont.

* * * *

Answer

Your sketch does not show any fault in the lay-out of the piping.

If the installation in question has been made as indicated on the sketch, with the pipes all graded as shown, there should be no trouble such as that mentioned in your letter.

It is just possible the trouble lies chiefly in the fact that the whole volume of water contained within the tank heats at a uniform rate, and that your customer requires a limited amount of very warm water in preference to a large amount heated to a lower temperature. If this is the case we should suggest the plugging of the side opening of the boiler, and the connecting of the hot water flow pipe to the point marked X on the drawing.

If the top connection is made as we suggest, you will find that the water will be heated in the tank from the top downward, and that there will be a body of very hot water found in the top of the tank shortly after the fire is kindled in the fire-pot.

However, we wish to say that there is nothing really wrong with the piping system as outlined by you.

NEW GOODS

MUELLER STEAM VALVES

The H. Mueller Manufacturing Company, of Sarnia, Ont., announce the introduction to the trade of their new models and extensions to the Mueller line of steam valves. In describing these products, the makers claim that they are made of high-grade steam metal in sizes ranging from ¼ inch to 2 inches. They are also fitted with the Mueller composition disc, which have successfully withstood various pressure tests. Other features pointed out by the makers are that these are provided with a large packing gland; the valve can be re-packed when open; the disc holder may be removed from the stem and placed in a vise facilitating the removal of disc; and both inlet and outlet are provided with full length tapered threads, while ample recess for pipe end clearance is provided for between the threads and the web. The valve is the new barrel type body, is of pleasing design and smooth uniform castings.

ELECTRIC WATER HEATER

The Supreme Water Heater Co., of Toronto, are giving special attention to their electric water heater, which is called the "Supreme." This product consists of a copper coil insulated in a jacket. The heating unit is of special construction, enabling the heat to be easily transmitted from the electric element to the copper coil. This coil is in turn wound into a spiral, so as to insure rapid circulation. This new way of heating water by electricity, is claimed by the makers of the Supreme heater to be much faster and more economical than the previously adopted methods of heating water electrically. It is claimed that this type of heater can be connected to any domestic boiler. One of the important features in connection with this Supreme heater is that the electric element is a separate unit from the heater itself, and in order to remove the element, it is not necessary to disconnect the heater. After the current is turned off the electrical element can be easily removed.

MYERS DISPLAY CARDS

A series of cut-out display cards illustrating the various lines of Myers products are being offered to the trade by the F. E. Myers and Brothers Company, of Ashland, Ohio. These display cards and other advertising material, illustrate the different styles of Myers power pumps. The Myers Company also offer printed matter for local distribution and also electrotypes for local advertising purposes where required. The intention is to assist the dealer in selling

McCASKEY ADDING MACHINE

A new product has been added by McCaskey Systems, Ltd., of Galt, Ont., to their specialty line of account systems and sales records. This is an adding machine which combines a cash drawer, and the makers claim that when this is used in conjunction with the McCaskey account register, it establishes a complete credit and cash system for any business. This combination adding machine and cash register is put up in three different key-board arrangements, and the manufacturers state that this machine gives a wide range of possibilities to merchandising records, for tracing cash, credit or departmental business transactions.

Catalogues and Booklets

MUELLER FLUSH VALVES

Catalog No. 4a illustrating flush valves, has recently been issued by the H. Mueller Manufacturing Company of Sarnia, Ont. The introduction to this booklet describes two of the principal uses of a flush valve, these being to render the closet tank unnecessary, and to deliver just sufficient water to flush the bowl satisfactorily. The makers claim that the flush valve is therefore very economical. It operates with either a push button or a turn of the handle. The catalog also contains a number of illustrations showing the flush valve in practical installation. Full details of the various styles are included, which, together with drawings and illustrations, present complete information on this line of products.

STORY OF THE BATH

"The Story of the Bath," is a story recently written by Edwin L. Barker, dealing with the history of the bath from its earliest stages until the present. This book introduces many practical themes in connection with the benefit of the daily bath, as well as presenting fundamental reasons for bathing, and the beneficial effects usually noticeable therefrom. An almost universal distribution is generally predicted for this book entitled "The Story of the Bath," in view of the every-day applicable nature of its contents.

Sanitary Engineer
Plumber and Steamfitter of Canada

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PUBLISHED TWICE MONTHLY BY

The MacLean Publishing Company, Limited

Montreal TORONTO, CANADA, Winnipeg

VOL. XVI APRIL 1, 1922 No. 7

Sanitary Inspector's Work

THE DECISION of the Ontario Association of Plumbing and Drainage Inspectors at their convention to admit master plumbers and heating engineers to future meetings of this organization is a progressive move. In a great many cases the work of the sanitary inspector and that of the master plumber and heating engineer are very close and getting together to discuss their problems at the annual convention should be of assistance to both parties. There is room for much educational work along this line because in too many cases sanitary inspectors and assistant inspectors working under the direction of local boards of health have not the necessary qualifications to thoroughly inspect and make recommendations on plumbing and heating installations. In this connection it is also apparent that in most municipalities the only thought is given to the inspection of new installations and when work is slack the inspectors are allowed to go. The subject of reinspection of installations in existing buildings is one which should have wider consideration. The city of Saskatoon has had experience with reinspection when tenants of properties move, or periodically when tenants do not change over a considerable period, and as result of such reinspection the number of faulty installations has been much decreased.

There is need for the application of strict plumbing by-laws in the various provinces of Canada, particularly in regard to the location of septic tanks and laterals so that they will not pollute the water supply with sewage. This matter was dealt with at the convention of the inspectors. Particularly are such measures needed in the rural districts, hence the need for the early enforcement in Ontario and other provinces of regulations which adequately cover the subject but which are being held up for some reason.

Lifting a Ton a Day

THE GREAT need for improved sanitary conditions in the rural districts of Canada provide plumbers with one of the best opportunities for business which could well be had. In encouraging the use of water supply systems and sanitary appliances in the rural districts the plumber is not only developing profitable business for himself but he is doing the farmer and the country as a whole a great service. This is the light in which such necessary equipment should be sold.

A short time ago a provincial department of agriculture sent out to a large list of farmers' wives the following question: "What one change of improvement would be of the greatest benefit to your home or which one would you yourself rather have?"

When one stops to consider for a moment the extensive list of conveniences for the country home which these women might choose, the result of the test is almost startling in its significance. After the replies were all in and a careful count made it was found that fifty-three per cent. of them preferred some system of running water to any other home convenience.

In commenting on the result the secretary of the department of agriculture stated: "The kitchen sink is still a luxury to too many farmers' wives although it should be considered a necessity. Running water means less need for hired help, fewer doctor bills, and a reduction in daily work for all. More water systems are needed to free the farm women from the back-breaking drudgery of carrying water."

A prominent engineer after having made a careful study of the water supply situation on the farm makes the astounding statement that many farmers' wives are lifting a ton of water a day. He classifies the securing of water from the source of supply and transporting it to point of application as the heaviest manual labor the farm woman must undergo. He figures that water so secured is handled an average of six times and a bucket of water containing two gallons will weigh twenty pounds, making a total of 120 pounds for a bucket of water. The cooking of three meals a day necessitates ten buckets, to which must be added water for bathing, scrubbing, washing, etc. He points out that in a short while the lifting of a ton a day will take the bloom from the cheek and the enjoyment from the soul of any woman.

The argument is strong enough and agencies are at work to encourage better sanitary conditions. The plumber can gain by linking up with such effort.

The Coal Strike

THERE APPEARS to be little chance of averting the international coal strike involving 600,000 miners and operators, particularly in view of the improbability of intervention by the U. S. Government as indicated in latest advices. While some who pose as authorities on the coal situation in Canada were quick to discount the effect of such a strike on Canadian industry, it is evident on further consideration that a protracted strike of miners can hardly fail to bring a shortage of fuel in many parts of Canada. Nova Scotia fields are so far not affected by the strike, this will relieve the situation in New England and Quebec. The opening of the navigation season helps the situation for Montreal, but southern Ontario is much concerned and in this territory lie many industries.

Many Canadian industries have laid away considerable reserve supplies of coal and certain steel and other industries have independent sources of supply. In the last coal strike in 1919 Canada got liberal treatment from the U. S. Fuel Conoller, but already there is some sentiment across the line that a repetition of the strike conditions should not bring about a repetition of such generous treatment for Canada as was formerly given. The United States is said to have a reserve supply of about 65,000,000 tons of soft coal, fully 80 per cent. of which is in the hands of railroad and public utilities. Non-union production is estimated to continue at a rate of about 4,000,000 tons a week and the reserve supply will therefore, if carefully watched, carry industries over 60 days' operations. The U. S. iron and steel industry is said to have sufficient coal to last 60 to 90 days. There are also fair stocks held in Canada, notably at Fort William, and the railways are fairly well taken care of. The stocks held are mostly out of reach of central Ontario points, however, and unless fairly generous treatment is accorded by U. S. authorities industries in this section may be the first to suffer from the coal stringency.

* * * *

THE PAST week has seen further improvement in the iron and steel trade from the standpoints of business and operation. Prices also are stronger though the 1.50c basis on plates, structural shapes and bars for which more large U. S. producers are holding is not established thus far by important transactions. March tonnage is well in advance of February which was the best month in over a year. Production of U.S. producers is now working toward the 70 per cent. mark.

* * * *

THE ANNUAL report of the U. S. Steel Corporation, leading iron and steel producer in the U. S., shows a decrease in earnings for 1921 of eighty-four million dollars while the output of all raw, semi-finished and finished products showed marked shrinkage. Production of iron ore mined decreased 39.2 per cent., manufacture of coke declined 39.4 per cent. and rolled and other finished steel products were reduced 44.8 per cent. Since the beginning of 1922, Judge Gary pointed out, new orders received have been equal to about one-half the total capacity of the plants of the company.

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights —Keep the Entire Series Where It May Be Referred To And Studied

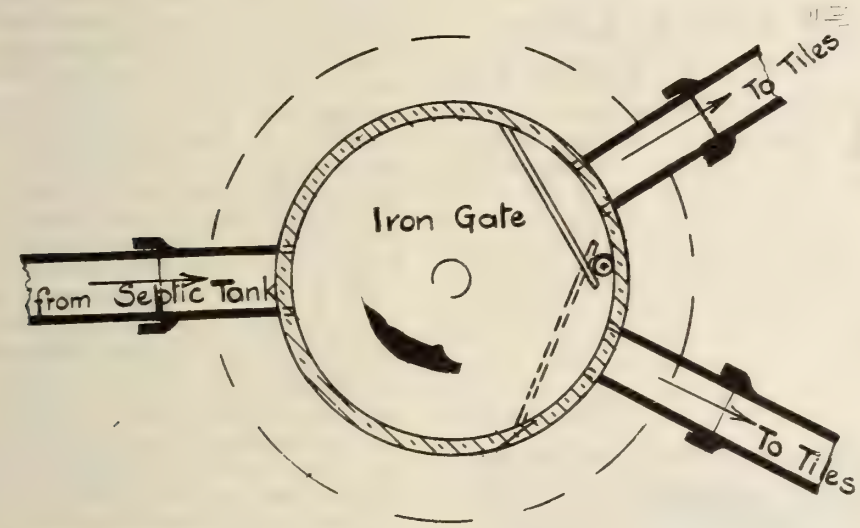

FIG. 65.

Continued from last issue

IN LARGE filtration areas it is always advisable to lay the land out so that whilst one part of same is undergoing treatment the other can be resting and obtaining the aeration required before receiving its second application of sewage. This is best controlled by means of diverting gates built in a distributing chamber. Figs. 65 and 66 show the plan and section of a cheap and effective chamber which consists of an ordinary 12 inch diameter vitrified pipe on a concrete base and surrounded with concrete 6 inches thick, the different main supply branches leading to their respective filtration areas are controlled by a ⅜ inch iron gate which works on a central hinge and protects either pipe by hand control and diverts the sewage to the area required for treatment.

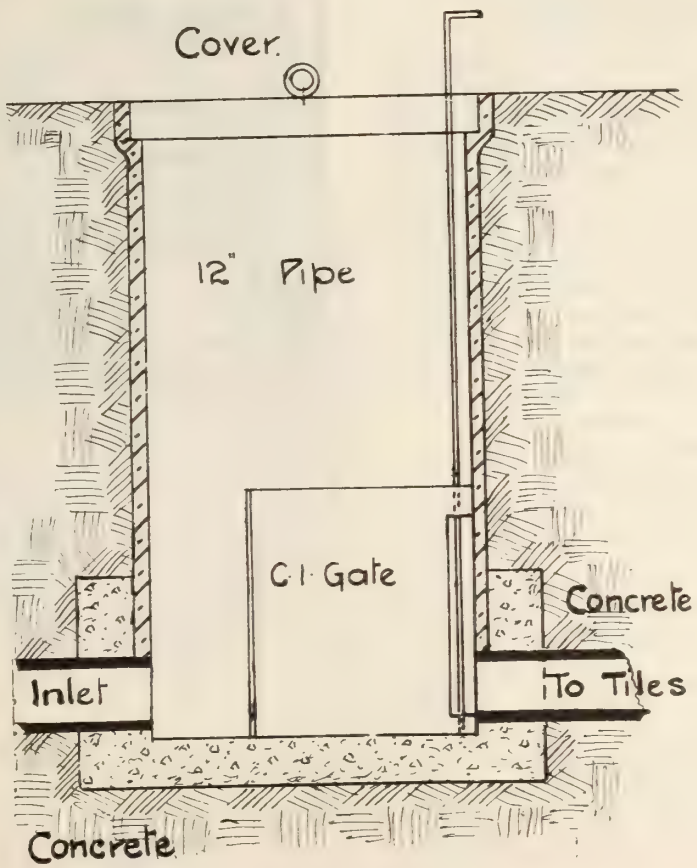

FIG 66.

MONTREAL'S INCREASED WATER SUPPLY

By converting a 30,000,000 gallon steam pipe into a pump operated by electricity at the low level pumping station, Atwater Ave., the city authorities announce they will in a few weeks have the electric pumping capacity increased from 75,000,000 gallons a day to 105,000,000 gallons.

INTEREST IN LEGISLATION RE WATER TO SUBURBS OF CITIES

Ottawa, Ont.—Considerable interest has been aroused over the move in the Ontario legislature to force cities to provide water and other services for suburbs. Works Commissioner A. F. Macallum of Ottawa, discussing the matter with the local representative of Sanitary Engineer said its effect in the Capital would be that practically twice as much power would have to be purchased, as the present pumping plant would be inadequate to supply the additional power needed to give suburban muncipalities service.

Generally speaking, he said, it would mean a tremendous expense to such cities as would be affected, Ottawa being one of them, and Toronto and Hamilton being among the others. Mr. Macallum stated that the farmer members in the House were responsible for the bill getting its second reading by such a large majority, as it would naturally be of great benefit to rural municipalities.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

BUSINESS CHANGES

Kitchener, Ont.—Oscar Grosy has taken over the plumbing, heating and tinsmithing business of W. G. Weichel & Son.

PERSONAL

Egmont L. Frankel, general manager, Frankel Brothers, metal and waste dealers, Toronto, Ont., has been elected President of the Non Ferrous Metal Division of the Waste Trade Dealers' Association of America.

OUTLOOK GOOD IN QUEBEC

W. H. Wiggs, President, The Mechanics Supply Co., Ltd., Quebec City, was a recent visitor at the Toronto Office of Sanitary Engineer. Mr. Wiggs stated that there is a great deal of building going on in the country districts and that business has been very good indeed with his company. He spoke optimistically of the outlook for the future especially in the country districts of Quebec.

OTTAWA PLUMBERS' UNION REFUSES WAGE REDUCTION

Ottawa.—The offer of 75 cents per hour, five cents per hour under last year's schedule, which was put forward by the master plumbers, was rejected in short order by the representatives of the plumbers' and steamfitters' union Last year the men received 80 cents per hour and this year have been offered 75 cents per hour, for the wage agreement of 1922-23. Beyond declining the offer of the masters the men did not state what their intentions were. A further meeting between the employers and the men will be held next week.

BETTER OUTLOOK FOR ENAMELWARE

In his review of operating conditions, President L. M. Wood, Port Hope Sanitary Mfg., Co., says, "As predicted in our last report there was a fair amount of building during the year, while prices of builders' materials declined to a level which with the easing of financial conditions generally, should permit of increased activity. The outlook for 1922 is encouraging, and promises a better demand for enamelware. While the volume of business may not increase very much as to value, our factories should produce a greater tonnage, the effect of which will be a lower production cost, which should in turn offset the last reduction in prices."

Announce Death of Sir John C. Eaton, Pres. T. Eaton Co.

THE death is announced of Sir John Craig Eaton, president of the T. Eaton Co. Ltd., Toronto and Winnipeg, the largest departmental store in Canada and one of the largest on this continent. Sir John Eaton has frequently been referred to as the "greatest merchant" in the Dominion and his death will be felt keenly among various branches of the business life of this country. Under his direction the T. Eaton Co., has continued to grow on the basic principles established over half a century ago by his father, the late Timothy Eaton, who died only fifteen years ago.

SIR JOHN C. EATON
President of T. Eaton Co., Ltd., Toronto, and Winnipeg, whose death is announced.

Sir John Eaton was but forty-six years of age, and passed away while actively engaged in directing the business affairs of the firm of which he was the head. Death resulted from influenza and came somewhat unexpectedly after a period of several days recovery from an earlier attack of this malady. He leaves a widow and five children the eldest a boy of nineteen years. Also surviving are his mother, Mrs. Timothy Eaton, and a brother, Major W. F. Eaton and two sisters.

A Liberal in politics, Sir John Eaton refrained from taking an active interest in party affairs though he was one of the eighteen prominent business men of Toronto who seceded from the Liberal ranks in opposition to the reciprocity pact of 1911. He was always a strong supporter of Canadian industry. Of necessity his store was a large importer of foreign goods, but wherever possible the Canadian product was given first attention. He was created a Knight Bachelor on June 3, 1915.

The T. Eaton Co., has always been in the forefront in introducing and following up business reforms, particularly in regard to the retail distribution of merchandise, and has been a leader in such movements as those for shorter hours for employees, half holidays, etc., and among business interests it is recognized that both Sir John Eaton and his father who founded the firm have always granted the utmost concessions to employees in the interests of a higher standard of living. Throughout all branches of the manufacturing and distributing enterprises of this company, these reforms have been carried.

The benefactions of Sir John Eaton have also been widespread and generous. He has made large grants to various charitable institutions and provided a helping hand frequently when required by various organizations and individuals. His assistance to employees particularly during the war was particularly appreciated by his staff, and his assistance in forming special fighting units and in other ways was an important factor in war times.

At the time of his death Sir John was in addition to his position at the head of the T. Eaton enterprises, a director of the Dominon Bank, Canadian Pacific Railway, Honorary Director of the Canadian National Exhibition, etc. His untimely death will be keenly felt by both business and social interests with which he was in contact.

PETERBORO FILTRATION PLANT

(Continued from page 20)

this purpose are situated at the reservoir dam. Here are installed two reciprocating pumps with a capacity of 2,500,000 gallons each per day, one reciprocating pump with a capacity of 3,000,000 gallons. These pumps are operated by waterdriven turbines which in turn are driven by the water held back by the reservoir dam so that their operation costs the city practically nothing.

CONVENTION ONTARIO SOCIETY D. S. & H. E.

The Eleventh Annual Convention of the Ontario Society of Sanitary and Heating Engineers will be held in Hamilton on April 6th, 7th, and 8th.

The Hamilton Society of Sanitary and Heating Engineers will entertain at a banquet on Friday evening April 7th. Invitations will be forwarded as follows: To members of the Ontario Society of Sanitary and Heating Engineers, members of the Hamilton Society of Sanitary and Heating Engineers, Unaffiliated Sanitary and Heating Engineers of Hamilton and District, and to the Ontario Manufacturers and Wholesalers. The convention and banquet will be held at the Royal Connaught Hotel.

QUEBEC TO INSPECT HEATING PLANTS

Montreal.—That action towards making effective the various provisions of the Provincial Act respecting "the protection of public buildings against fire," is about to be taken, was announced by Louis Guyon, Deputy Minister of Public Works and Labor. Within a fortnight, said Mr. Guyon, the establishment would function for the twofold purpose of examining electrical workers and of conducting inspection of electrical installations and heating systems in all public buildings.

The law on this subject was adopted by the Legislature in 1909, and amended at the last session of the Legislature. The purpose is to provide for the inspection of all buildings to which the public are admitted, including office buildings, schools and churches. By the amendments adopted at the last session it was provided that after May 1, 1921, every new installation either for light, heat or motive power, as well as the heating system in public buildings, must be submitted for the approval of the chief inspector of industrial establishments and public buildings, and to the examiners appointed for that purpose. When an installation is approved a certificate will be given and must be posted in the building. The act further provides that installations placed in buildings previous to the coming in force of the law may be inspected, and if found defective must be altered in accordance with the views of the chief inspector.

WESTERN ONTARIO NEWS

Alex. Milne, London, Ont. has been awarded plumbing and heating for new $4,000 residence for J. M. Totten.

Andrew Lang, Dunkeld, Ont., wants prices on hot air heating and plumbing for new $4,000 residence.

F. L. Willgoose, 546 Dundas St., wants prices on hot air heating, plumbing and electrical work for new $5,000 residence.

F. Dark, R. R. 7, London, Ont., wants prices on hot air heating, plumbing and electrical work for new $5,000 residence.

Percy Ashton, Dominion Savings Building, London, Ont., wants prices on hot air heating, plumbing and electrical work for new $4,500 residence.

Mechanics Supply Co. Erect New Warehouse

The contemplated erection of another four or five storey warehouse, marks another important step forward in the progress of the Mechanics Supply Co. Ltd., Quebec City, hardware and plumbing supply firm. The history of this company during the past fourty-four years under the capable guidance of W. H. Wiggs, has many romantic sidelights and provides an important link in the history of plumbing trade in Canada.

Two years ago a large piece of property was purchased on St. Andrew St., Quebec, and the time has now arrived when a fine new warehouse will be erected on those premises to supplement present facilities.

It was in 1878, forty-four years ago, that W. H. Wiggs as a young man of seventeen years entered business in Quebec and after eleven years apprenticeship he had an opportunity of forming a company of his own. Some of the first members of the staff who are still with the firm often look back to those early days when modern plumbing and heating were in their infancy. Among these may be mentioned G. H. Simpson now vice-president, W. R. Wilkinson, secretary, Messrs. A. Matte and A. Morisset, two directors, and O. Carrier, the firm's oldest storeman.

The new warehouse will be erected on St. Andrew Street and will give ample accommodation for future local requirements.

W. H. WIGGS

President Mechanics Supply Co. Ltd., of Quebec City, whose forty-four years of business in the plumbing and hardware trade is now capped with further progress in the form of enlarged warehouse facilities.

E. Bourne, 510 Hamilton Road, London, Ont., wants prices on hot air heating, plumbing and electrical work in connection with five dwellings to cost $15,000.

Plans for an $18,000 school are being prepared by Archt. W. G. Murray, Dominion Savings Bldg., London, at Mount Elgin, Ont. Hot air heating, plumbing Frank Harris, secretary. Prices wanted.

COLLECTION OF INTEREST

(Continued from page 22)

liability to pay interest until the final settlement of the account, when they evidently intended to raise the question of their liability to pay interest.

Implied Understanding

In the result the judge held that the court of dealings between the parties, coupled with the printed notification on the plaintiff's statement of account, sufficiently evidenced an implied understanding or agreement to pay interest, to bring the case within the general principle that an agreement to pay interest may be reasonably implied from the previous dealings of the parties, coupled with a printed notification of intention to charge interest on the vendor's statement of account.

In Hart vs. Greer, 33 W.L.R., p. 39, the plaintiff had printed on his account, "interest at 10 per cent. per annum chargeable after thirty days," and the evidence showed that on several occasions subsequent to the expiration of thirty days, the plaintiff called the defendant's attention to the printed notice on the statement, and notified him that interest was being charged.

The district court judge considered the case of Marshall vs. Eaton & Gordon, mentioned above, and decided that while, as stated by the judge in that case, the printed words taken alone do not constitute a written demand under the Act, they do limit the period of credit or render the account payable within the time therein specified, so as to bring the case within the first part of subsection 2, s. 29, of the King's Bench Act above referred to, and that where the attention of the debtor is called to the notice and he is notified that interest is being charged, it constitutes a demand in writing informing the debtor as is required by the said subsection.

To sum up, therefore, it would account to the effect that interest as appears from the cases above quoted that if a notification is printed on the notice a specified rate will be charged after a certain period the debtor will be liable to pay interest by virtue of that notification, if (1) he has been in the habit for a period of time of making payments from time to time on accounts bearing the notification and including interest, so that an agreement to pay interest could be inferred from the course of dealings between the parties; or (2) if, after the expiration of the credit period intimated on the account, a demand is made for payment from the debtor and interest is demanded pursuant to the notification printed on the account.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

MARKETS AT A GLANCE

CURRENT price developments on sanitary and on tin plates, brass compression bath cocks, heating materials include lower quotations wrought nipples, and galvanized sheets. Easier price levels are also recorded on some lines of plumbers' nickel-plated bath and basin fixtures, such as supply pipe and traps, while asbestos wick packing shows a similar reduction. Charcoal tin plate, coke tin and terne plates show varying reductions on the different cases. The lower quotations are evident through revised discounts on wrought nipples in all sizes and lengths, but no similar change is reflected in couplings or wrought piping.

Some improvement in the seasonal movement of plumbing and steam-fitting materials is recently noted, with brisk building activity being reflected in the future demand for such products as enamelled ware, radiators, eavestrough and piping. Some further developments are looked for in certain quarters as regards brass compression discounts.

It is noticeable that there has developed a firmer trend in the sheet markets, together with a slightly improved buying activity in bar iron and steel products. Recent reports covering the steel industry indicate that prices are stiffening, but while there have been no actual advances recorded, signs that this condition is liable to merge into future increases may easily develop. Trade in range boilers remains of a moderate nature, but there is recently a more active movement in eavestrough. Cautious buying continues the rule in corrugated, with a slight increase reported in inquiry for certain brass and copper products. Activity in electric ranges is noticeable, with oil stoves for the summer season also registering a satisfactory movement. The easy undertone is still evident in scrap materials, while irregularity remains the principal element in ingot metal centres.

MONTREAL MARKETS

MONTREAL, March 31.—Price recessions in the sheet markets, compression goods and wrought nipples feature the markets for plumbers' and steam-fitters' supplies. Tin plate in full boxes is reduced 50 cents per box, and 56 sheet boxes 25 cents. Terne plate is $1.00 per box lower, and is now quoted at $15.00. Discounts on close and short nipples are increased ten points, while long are affected to the extent of five points. In compression goods, bath cocks show a price decline of approximately five per cent. through increasing the discount, and nickel-plated supply pipes and traps are slightly reduced. Asbestos wick packing is reduced and is now quoted at 65 cents per lb.

There is a general improvement felt throughout the trade, and sales in many commodities have shown a favorable increase during the past two weeks. Further increased building construction is promised at a later date, and a corresponding movement of such lines as enamelled ware, boilers and radiators, range boilers, and compression goods, is anticipated in the near future.

LOWER PRICES ON ASBESTOS WICK PACKING

Montreal

A reduction is made in the quotations on asbestos wick packing and this is now quoted at 65 cents per lb.

WROUGHT NIPPLE PRICES ARE REDUCED

Montreal

Lower prices are now quoted on all sizes and lengths of nipples, owing to a revision in discounts. Close and short nipples, all sizes, show a change of ten points in their discounts, while long nipples, in all diameters, are revised to the extent of five points. It will be remembered that nipples were not reduced at time of issuing last wrought pipe list, and present revision is made without a change in pipe. Couplings also, remain unchanged. The sale of fittings is still described as fair, mostly confined to small sorting orders. Following are present quotations:

PIPE FITTINGS—	Per Cent.
Cast iron fittings	30
Bushings, cast	32
Bushings, malleable	32
Flanges	40
Plugs	30
Flange unions	30
Malleable unions	47
Dart unions, black	33
Do., galvanized	13
Nipples, ⅛ to 4" close and short	60
Do., long	65
Do., 4½ to 8" close and short	50
Do., long	55
Couplings, 4" and under	30
Do., 4½" and larger	10

Pound Goods —	Blk.	Galv.
Class A	0 54	0 67
Class B	0 20	0 28
Class C	0 13	0 20

REDUCTION IN BATH COCKS AND PLATED SUPPLIES

Montreal

Through increasing the discount on compression bath cocks three points, a reduction of approximately five per cent. is recorded. Other lines showing a slight revision are nickel-plated supply pipe and traps. The remaining lines are unchanged for the present, but a further reduction on certain supplies would not be surprising in the near future. The nature of this revision and the specified lines it would affect could not be ascertained at present, but a move is said to be on foot to make other changes. There is now a fair amount of business reported, which will in all probability be increased in the near future with the approach of a more active building program. Following are present discounts:

COMPRESSION GOODS—	
Compression work, standard	45%
Fuller work, standard	30%
Quick opening compression bibbs	43%
Bath cocks, compression	38%
Bath cocks, quick opening	41%
Basin cocks, compression	34%
Basin cocks, quick opening	46%
Flatway stop and waste cocks, standard	54%
Roundway stop and waste cocks, st'nd'rd	46%
Brass steam cocks, standard	43%
Radiator valves, standard	58%
Do., removable discs	58%
Globe, angle and check valves, standard	25%
Gate or straightway	25%
Emco globe valves	33%
Emco check valves	33%
Jenkins globe, angle, check and swing check	19%
Jenkins gate or straightway	25%
Jenkins iron body, globe and angle	15%
Jenkins iron body, gate	33%
N.P. "P" and "S" traps	40%

FURTHER REDUCTIONS IN SHEET MARKETS

Montreal

Local sheet markets are again featured with price recessions, American galvanized sheets being reduced in quarters where quotations were formerly higher than those given by other firms. Tin plate in full boxes shows a price decline of 50 cents per box, and 56 sheet boxes 25 cents. Terne plate is $1.00 per box lower, and is now quoted at $15.00.

Although the local market in recent weeks has recorded easier price levels on practically all lines, there is said to be a much healthier condition at sources of supply. The recent changes locally are, for the most part, the result of distributors attempting to reach the lowest possible levels in order to allow Spring shipments for the more active period in the following months. It is now generally believed that such has been reached, and the opinion has been expressed that higher prices are altogether probable in the not far distant future. Business is more active from week to week, particularly in galvanized sheets. Following are revised quotations:

BLACK SHEETS—		
10 gauge	4 00	4 50
12 gauge	4 10	4 60
14 gauge	4 40	4 70
16 gauge	4 50	4 80
18-20 gauge	4 55	5 05
26-gauge	4 60	5 20
22-24 gauge	4 65	5 25
28 gauge	4 75	5 35
GALVANIZED SHEETS—		
10¾ ounce	6 65	7 10
28 gauge	6 25	6 70
26 gauge	5 95	6 35
22-24 gauge	5 80	6 10
20 gauge	5 65	5 95
18 gauge	5 65	5 85
16 gauge	5 50	5 80
14 gauge	5 35	5 75
12 gauge	5 20	5 75
10 gauge	5 10	5 75
	Queen's Head.	Fleur-de-lis
English Standard—		
28 gauge	7 00	6 75
26 gauge	6 75	6 50
24 gauge	6 15	6 10
22 gauge	5 80	5 65
18-20 gauge	5 10	5 50

NOTE—These prices are for full bundles: an extra charge of 25c to 35c per 100 lbs. is made for broken lots. Extra for sheets 4 ft. wide, 50 cents per 100 pounds. Extra for sheets 3 ft. wide, 28 ga. and 10¾ oz. 25 cents per 100 lbs.

CANADA PLATES—	
Dull.	
18 x 24 x 52s	5 60
18 x 24 x 60s	5 80
18 x 24 x 75s	6 10
WELSH CANADA PLATES—	
Polished.	
18 x 24 x 52s	7 75
18 x 24 x 60s	8 00
BRIGHT TIN PLATES—	
28 x 28 x 100 lbs., bases	15 50
20 x 28 IC., 112s	16 00
20 x 28 IX., 112s	18 00
20 x 28 IXX, 56s	10 25
20 x 28 IXXX, 56s	11 00
TERNE PLATES—	
20 x 28 IC, 112s	15 00

VIRGIN METALS STEADY LEAD PRODUCT SITUATION

Montreal.

The downward revision in solder quotations three weeks ago marked the last price development in lead products. The market generally is now fairly steady owing to metals on primary markets continuing with quotations practically unchanged. Trade in these products shows a slight improvement in recent weeks, but with the winter months now over, a further improvement is looked for especially in such lines as lead pipe, traps and bends, and other plumbers' supplies. These lines being in demand for building activities. Following are unchanged quotations:

Lead pipe, per 100 lbs.	12 50
Lead waste, per 100 lbs.	13 50
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	10% off
Lead wool, lb.	0 13½
Lead sheets, 2½ lbs.	0 10½
Lead sheets, 3 to 3½ lbs., sq.	
Do., 4 to 8 lbs., sq. ft.	0 09½
ft., lb.	0 10¼
Cut sheets ¼c lb. extra and cut sheets to size, ¾c lb. extra.	
Solder, guaranteed, lb.	0 25½
Do., strictly, lb.	0 23½
Do., commercial, lb.	0 20½
Do., wiping, lb.	0 21½
Do., wire, lb.	0 33½
Zinc, sheets, casks	0 11
Do., broken lots	0 11½

COPPER PRODUCTS ARE SOMEWHAT STEADIER

Montreal.

There is little or no change in the market for brass and copper products, and quotations remain at recently revised levels. The virgin metal in recent weeks has become more settled, and while failing to show much activity is apparently at the end of the downward movement for the present at least. Unchanged prices are the following:

	Base
BRASS—	
Sheets	0 24
Rods, ½ to 1 inch, round	0 22
Tubing, seamless	0 30
COPPER—	
Rods, ½ to 2 inch	0 29
Soft sheets, plain, 16 oz. and heavier lb.	0 32
Plain tinned, 16 oz. and heavier, lb.	0 36
Polished and tinned, 16 oz. and heavier, lb.	0 41
Tubbing, lb.	0 32

Above prices are for full sheets or bars. Cuts 5c. per lb. higher.

IRON AND STEEL MARKET IS NOW FIRMER

Montreal.

Current demand for iron and steel continues to improve, and while the progress may be slower than was hoped for earlier in the year, the trend is described as being healthy. The absence of any great movement in larger building construction is felt, but even here, it is stated as not too late for an improvement at a little later date. Mill operations are still increasing, and there is every indication of a general betterment at primary sources. Quotations locally are unchanged, but generally considered firm. Unchanged quotations are the following:

IRON & STEEL—	
Common bar iron, 100 lbs.	2 65
Refined iron	4 15
Iron finished machinery steel	2 70
Mild steel	2 65
Single reeled machinery steel	4 75
Band steel	2 65
Spring steel	4 25
Sleighshoe steel	2 65
Tire steel	2 85
Toe calk steel	3 55
Harrow tooth steel	2 80
Mining tooth steel, per lb.	0 21½
Black Diamond tool and cast steel	0 21½

NOTE—Refined iron is approximately $1.50 per 100 lbs. over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs. extra.

BUSINESS IS QUIET IN SCRAP METALS

Montreal.

The waste material markets are unchanged, prices now remaining fairly steady, with buying continuing of a hand-to-mouth nature. Scrap iron, according to dealers, should soon commence to show an improvement, as the steel industry, on a whole, is improving and is now on a better basis than it has been during past months. While it may take some time for this to reflect in scrap markets, encouragement is lent by the move evident in this direction. There is very little business in non-ferrous metals, these having been very quiet for some months past. Following are average dealers' quotations:

SCRAP—	
Automobile Tires	0 50
Rubber Shoes	0 03
Yellow brass	0 05
Red brass	0 08¼
Light brass	0 03
Scrap zinc	0 03
Lead, heavy	0 04
Lead, tea	0 02
Light copper	0 08
Heavy copper	0 10
Wrought iron, R. Rd., No. 1 per gr. ton	10 00
Malleable scrap (ton)	8 00
Pipe scrap (ton)	6 55
Heavy melting steel	6 50 to 7 00
No. 2 busheling	3 00
Boiler plate	6 50
No. 1 machinery cast	20 00

PRACTICALLY NO CHANGE IN RANGE BOILERS

Montreal.

The range boiler situation locally shows little change, sales continuing of a moderate nature, and quotations more or less unsettled. List prices and discounts are quoted by most firms, but others are still maintaining former net prices. Current business is expected to improve in the near future, the opening of the present month usually bringing the commencement of a more active period in lines pertaining to the building industry. The tone of the boiler market is also little changed, and although present quotations are recognized as low, with galvanized sheets showing first signs of improvement and a possibility of increased prices, there is said to be no immediate signs of a revision in the finished products. List prices and discounts are the following:

RANGE BOILERS:—	
5 Gallon	$13.50
12 "	14.00
18 "	15.00
25 "	16.00
30 "	17.50
35 "	20.50
40 "	22.75
52 "	38.00
66 "	60.75
82 "	74.00
100 "	103.00
120 "	117.00
144 "	164.00
168 "	187.00
192 "	210.00

Discounts. Standard weight, 50 per cent. Extra Heavy, 40 per cent.

EXPECT BRISKER TRADE IN SOIL PIPE

Montreal.

With the gradual approach of a more active building program, dealers in soil pipe and fittings anticipate a better buying movement to commence in the not far distant future. Up to the present, sales of these lines have been seasonably quiet, but not unusually so for the earlier months of the year. Quotations remain at former discounts, and while there is said to be a possibility of a slight revision in an upward direction with the opening of a better buying movement, there is no indication of a change in either direction at the present time. It is generally recognized that prevailing levels are well down to bottom, and where quoted owing

to competition from outside fields, but it is felt that a stronger factor than a business revival will be necessary to increase quotations. Following are unchanged prices:

SOIL PIPE—
2 and 3 inch 47½%
4 inch 50%
5 and 6 inch 47½%
Fittings—
2 to 6 inch 50-10%

BOILER TUBE BUSINESS IMPROVES SLIGHTLY

Montreal.

A somewhat better buying movement is now reported in boiler tubes and it is felt that an inceased volume of trade will continue in view of the quiet period in past months. Prices are remaining steady and better sales will undoubtedly assist towards maintaining present levels, although these quotations are considered rather high in comparison with allied products in the iron and steel industry.

BOILER TUBES—	Seamless	Lapweld
1 inch	24 70	.....
1¼ inch	24 50	.....
1½ inch	24 00	.....
1¾ inch	26 00	26 00
2 inch	24 50	20 50
2¼ inch	27 75	23 50
2½ inch	32 50	24 50
3 inch	40 00	30 50
3½ inch	52 50	34 75
4 inch	65 00	44 00

ENAMELLED WARE SHOWS SIGNS OF IMPROVEMENT

Montreal.

The local market for enamelled ware can now be described as somewhat improved over the past quiet months. From a sales point of view, activity is more pronounced from week to week. Although, according to a large distributor of these lines, there is room for great improvement, it is generally felt that trade will reach a satisfactory volume as the season advances. The building program for this year is encouraging, and although principally of the dwelling-house type, it is this class that requires the various lines of enamelled ware. Quotations are nominally unchanged at 33 1-3 off, with a further small discount offered for attractive sized inquiries. Following are list prices and discount:

	1 only	2 only	3 only
Sinks, roll rim—			
18 x 30			$23 00
Sinks, flat rim—			
16 x 24	$ 7 60	$ 7 40	$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide			51 40
Bath tubs, 5½ feet			57 10
Lavatories—			
17x19 in. Apron F139 or P4045			15 30
18x24 in. Apron F154 or P3845 or P3847			23 60
18x21 in. Apron F169 or P4205			17 60
17x19 in. Roll rim, F241 or P4345			12 60

Less 33 1-3 per cent.

CLOSET OUTFITS STILL NOMINALLY QUOTED

Montreal

Current quotations on closet outfits are unchanged, although it is generally admitted that prices are very nominal, and price concessions are given for fair sized orders. This condition has prevailed on the local market for some time, and while the situation is still little improved, it is certainly no worse than in past months, and dealers are hopeful that increased business at a little later date will remedy this to a great extent. As in other lines of enamelled ware, closet combinations are selling somewhat better in recent weeks, with the outlook promising for further improvement owing to increased building construction. Following are unchanged nominal prices:

CLOSET OUTFITS—	
Closet, standard outfit	27 50
Do., with post hinge seat	28 50
Do., white vitro, vitreous china or enameled iron, with wash-down bowl and oak or mahogany post hinge seat	30 50
Do., reversible trap bowl, less spud	12 75
Do., add for siphon jet bowl	7 00
Do., for ⅜ in. valve on supply pipe	1 50
Deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	10 50
Do., reversible trap bowl, less spud	11 50
Do., siphon jet bowl, less spud	19 00
Do., Richelieu bowl	9 00
Do., extra for spud	0 60
Do., oak, or oak-vitro tank, with fittings, less seat	14 25
Do., wood strip seat and cover	3 55
Do., post hinge seat and cover	4 25
Do., add for bar hinge	No extra
Do., white vitro, vitreous china, or enameled iron tank, with fittings, flush elbow and supplies less seat	18 50
Do., Vitreous China	20 00

RADIATORS AND BOILERS AT UNCHANGED DISCOUNTS

Montreal.

Quotations on radiators and boilers remain at former discounts with trade described as seasonably quiet at present. Although there is considerable building construction under way, and quite an extensive program for a little later date, this has not yet advanced to the stage when heating systems are required. Indications, however, point to a satisfactory season in the months following, and dealers are quite optimistic. Unchanged quotations are the following:

Radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

45 in. to 38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60. Discount, 59% for hot water and 60% for steam.

Wall Radiators—5 ft., $1.15; 6 ft., $1.10; 7 ft., $1.05; 9 ft., $1.05; 12 ft., $1.05. Discount 56%.

Boilers.—Round hot water boilers, low base only (high base discontinued) sizes from 0 to 10, 64 per cent. off list.

Square or sectional hot water or steam boilers, 15-in., 20 per cent.

For Ontario Government trimmings add 5 per cent.

Square or sectional water boilers, 19-in to 36-in. 20 per cent. off list.

Square or sectional steam boilers, 19-in. to 36-in., 20 per cent. Ontario Govt. trimmings, 10 per cent.

Round steam boilers, standard trimmings, 28 per cent. off. Ontario Government trimmings, 25 per cent.

All prices f.o.b. Toronto, Montreal, Guelph, Hamilton, St. Catharines or Brantford.

VERY LITTLE CHANGE IN COTTON WASTE MARKET

Montreal.

Conditions in the cotton waste market are practically unchanged, quotations said to be much steadier than in the opening months of the year owing to the raw material being on a more stable basis. Fluctuations have occurred recently, but not of sufficient extent to reflect on waste and other finished products. Demand is described as improving and dealers anticipate a fairly active movement in the following months. Unchanged quotations are the following:

COTTON WASTE—Cream polishing, 18c. per lb. White—XXX extra, 16c.; XX grand, 15c., XLCR, 14c.; X Empire, 13c.; X press, 11½c.
Colored—Fancy, 13½c; Lion, 12c; Popular, 9c; Keen, 7½c.
Wool Packing—Arrow, 25c; Axle, 22c; Anvil, 18c.
Dominion Wipers—White cotton, 20c; colored cotton, 14c.

EAVESTROUGH AND CONDUCTOR PIPE STEADILY IMPROVES

Montreal

Current trade in eavestrough and conductor pipe has now reached favorable proportions for this season of the year, dealers stating that sales have steadily improved during the past few weeks, with indications of a fair season ahead. Quotations on these lines, also sundries, are continuing unchanged, with the improvement in flat sheet circles tending to firm the situation to an extent. There is, however, no indication of a change in the near future, and manufacturers and distributors are of the opinion that prices will remain quite steady throughout the active season in the weeks to follow. List prices and discounts are as follows:

EAVESTROUGH—
O.G. Round and Half-round, per 100 ft., 8 in., $16.90; 10 in., $18.70; 12 in., $22.20; 15 in., $29.80; 18 in., $37.80.
O.G. Square bead, per 100 ft.: 8 in., $15.90; 10 in., $17.70; 12 in., $21.20; 15 in., $28.80; 6 in., $36.80.
Discount 70|10 per cent.
Conductor Pipe, Round, Plain and Corrugated, per 100 ft.: 2 in., $18.40; 3 in., $23.30; 4 in., $29.60; 5 in., $40.00; 6 in., $49.00.
Discount 70|10 per cent.

CONDUCTOR ELBOWS—
Plain or corrugated, price per doz.
2 in., $5.25; 3 in., $6.00; 4 in., $10.50; 5 in., $24.00; 6 in., $29.00.
Discount 60 per cent.

CORRUGATED SHEETS ALSO MORE ACTIVE

Montreal.

The improvement recorded in flat galvanized sheets is also noted in corrugated. For some weeks past the movement of these sheets has improved, and although gradual, it is said to be of a healthy nature and indicates that further increased business will be forthcoming as the season advances. Building of the smaller class is now demanding supplies, and practically all sections are benefiting by this movement. Quotations are unchanged at the following list prices and discounts.

CORRUGATED SHEETS—	Per 100 sq. ft.
No. 28 gauge	6 50
No. 26 gauge	7 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50

Less 10 per cent.
Lighter than 24 gauge and wider than 27 inches, 75c a square extra.

INGOT METALS CONTINUE TO MARK TIME

Montreal.

Changes in the ingot metal markets are very slight, and there are no special features to report. In most cases prices are more or less marking time around the bottom, but when the upward trend

will commence is difficult to state. Buyers are still working on a hand-to-mouth basis, and will doubtless do so until there are clearer indications of an advance.

TIN.—This metal continues to range around £143 mark in London, and has now been close to this figure for some time. Consumption is expected to improve from now on, and the position of this metal should benefit thereby. The local market remains quiet at 34 cents.

COPPER.—Fluctuations in London are slight and caused chiefly by the movement in exchange. New York is quiet, and it is possible to buy electro at about 12⅞ delivery for prompt shipment. There is little demand for ingot copper locally, and quotations remain at 16¾ cts. for electro, 16½ for casting.

SPELTER.—East St. Louis is slightly lower at $4.62½ for spot. London is steady and there is no sign of weakness there. Locally spelter is unchanged at 7 cents.

LEAD.—Lead is fairly firm in all markets, and demand is good. Prospects for this metal seem somewhat better at present. Locally, quotation is unchanged at 6¾ cents.

ANTIMONY.—Domestic demand for this metal remains at low ebb, and the market is practically unchanged. Stocks are still quite heavy, and with this condition prevailing, there seems little chance of an early improvement. Chinese is quoted at 6¾ cts., high grade English at 7¾ cts.

ALUMINUM.—Aluminum continues dull on the market, and the situation of this metal is unchanged with quotation remaining at 24 cents.

TORONTO MARKETS

TORONTO, March 31.—Charcoal tin, coke tin and terne plates, together with brass compression bath cocks, and wrought nipples, supply the principal price revisions on the current sanitary and heating markets. Tin plate quotations record varying reductions on the different cases. Through revised discounts, lower price levels are evident on nipples in all sizes and lengths, but no similar change is reflected in couplings or wrought piping. The lower quotation on compression bath cocks is included among reductions on some lines of plumbers' nickel-plated bath and basin fixtures, such as supply pipe and traps.

The asbestos market is still in a quiet condition, but an active season is generally looked for in enamelled ware products. A firmer trend has developed in the sheet markets, with slightly improved buying activity in bar iron and steel products. There is moderate trade in range boilers, but a more active movement in eavestrough is noted. Cautious buying of corrugated sheets prevails, with better inquiry for certain brass and copper products reported. There is generally an active demand for electric ranges, with oil stoves for the summer season also registering fair activity. The easy undertone is still evident in scrap materials, while irregularity remains the principal element in ingot metals.

VARYING REDUCTION IN TIN PLATE PRICES

Toronto.

In support of the tendency to shade prices on tin plate for attractive orders, which was recently noted in Sanitary Engineer, a revision has now been announced in prices on these products. These changes affect coke tin plates, charcoal tin, and terne plates. The average decline is between fifty cents and one dollar per case. Following are the revised quotations on the domestic markets:

	Per box
PLATES, CANADA—	
Dull, 60 sheets	5 30
Ordinary, 52 sheets	5 25
PLATES, COKE TIN—	
IC, 20 x 28, 112 sheets	12 50
IX, 20 x 28, 112 sheets	16 00
IX, 20 x 28, 56 sheets	8 50
PLATES, CHARCOAL TIN—	
IX, 20 x 28, 112 sheets	10 00
IXX, 20 x 28, 56 sheets	12 00
PLATES, TERNE—	
10 x 14 x 20, 112 sheets	11 50

ACTIVE DEMAND NOTED FOR ELECTRIC RANGES

Toronto

Current business in stoves and ranges is described as fair by manufacturers of these products. The chief degree of activity is evident in electric ranges, for which it is stated there is a fairly brisk demand. On the other hand, the coal and wood stoves are now entering the dull season. Oil stove manufacturers and distributors report recent improvement, and generally look for a good trade to develop throughout the ensuing months.

REVISED DISCOUNT ON COMPRESSION COCKS

Toronto.

A downward revision of approximately five per cent. has been made in quotations on some lines of plumbers nickel-plated bath and basin supplies. Supply pipe and nickel-plated traps record a similar reduction. The discount on compression bath cocks has also been changed from 35 to 38 per cent. off list. Other lines of compression goods show little variation, current business being of a fairly moderate nature, with quotations generally being maintained at the recent revisions. Following are prevailing discounts on these various products:

	Per cent.
VALVES—	
Compression work, standard	45
Fuller work, standard	30
Bath cocks, compression	38
Do., Fuller	25
Flatway stop and wastecocks, stand'd	54
Roundway stop and waste cocks, std	46
Brass steam cocks, standard	43
Globe, angle and check valves, std	25
Mueller globe, angle and check	25
Mueller composition disc steam valves	33
J. M. T. valves, screwed	20 10
J. M. T. gate valves, screwed	25 10
J. M. T. gate valves, screwed	25 10
Jenkins gate or straightway, screwed	25 10
Jenkins globe, screwed	19 10
Radiator valves, standard	58
Do., removable disc	58
Emco. J. D., rad. valves, screwed	33
Emco swing check, ⅜" and ½"	40
Do., Do., other sizes	33
Webber gate valves, screwed	30
Emco globe valves, std.	25
Emco globe valves, J.D., screwed	33
Basin cocks—	
No. 0 and 1 Fuller pattern	30
Quick opening No. 3633	50
No. 3623, plain or index handle	34

REVISED DISCOUNTS ON WROUGHT NIPPLES

Toronto

Lower quotations on wrought iron nipples, through revising the discounts, feature the current pipe fittings market. These products were not changed when the last revision was made on pipe, and the present change is not reflected in quotations on piping. Nipples, close and short, four inches and under, are now given a discount of 60 per cent. Varying reductions are needed on the other sizes and lengths. Couplings remain unchanged in price.

Sorting orders continue to form the greater portion of present trade in pipe fittings, with dealers apparently still willing to care for immediate requirements only. Quotations on the various lines, including the revised discounts on nipples, are as follows:

	Per cent.	
PIPE FITTINGS—		
Cast iron fittings	30	
Plugs, cast iron	30	
Oo., solid	30	
Do., countersink	30	
Bushings, malle.	32	
Do., cast	32	
Unions, ¼ in. to 2 in.	47	
Do., 8 in., 2¼ to 4 in.	47	
Flanged unions, std.	30	
Flanged fittings	30	
Dart unions, blk., ¼ to 2 in.	33½	
Do., ⅛ in., 2¼ to 4 in.	23	
Do., galvd., add to black	30	
Nipples, blk., and galvd. ⅛ to 4 in. close and short	60	
Do., 4½ in. and larger	50	
Do., long, ⅛ in. to 4 in.	65	
Do., 4½ in. and larger	55	
Do., running thread	40	
Couplings, 4 in. and under	30	
Do., 4½ in. and larger	10	
MALLEABLE FITTINGS—		
Class A	0 54	0 67
Class B	0 20	0 28
Class C	0 13	0 20

UNCHANGED DISCOUNTS ON SOIL PIPE AND FITTINGS

Toronto

With the current quotations unchanged on soil pipe and fittings, general interest in this market is attracted to the volume of business now reported, together with the prospects for future improved activity. While some variation in discounts is still noted between local and eastern markets, yet the Montreal freight rates are described as tending to prevent eastern houses from encroaching upon western territory to the detriment of local manufacturers and

distributors. With the advent of more staple conditions in these markets, due to improved demand during the ensuing spring and summer periods, uniform quotations are looked for in the near future. Following are the local unchanged discounts:

SOIL PIPE—

2 inch	40 per cent.
3 inch	40 per cent.
4 inch	40-5 per cent.
5 and 6 inch	40 per cent.
8 inch	net

FITTINGS—

2 to 6 inch	50|5 per cent.
8 inch	net

PROGRESS IN BUILDING REFLECTED BY CALL FOR CLOSET OUTFITS

Toronto

Trade in closet combinations and fixtures during the month of March is described by manufacturers and distributors of these products as moderate. An improvement in this respect is generally looked for during the ensuing months, with more seasonable weather contributing towards activity in building circles, which in turn is reflected in the current demand for closet outfits. Following are the average unchanged price levels on the local market:

	each
CLOSET COMBINATIONS, low down	
Closet, standard outfit, oak	27 75
Do., with post hinge seat	28 40
Do., mahogany Vitro or Pussyfoot, with mahogany post hinge seat and cover	30 25
Do., vitreous china, with oak post hinge seat and cover	30 75
Do., vitreous china, with mahogany post hinge seat and cover	31 00
Do., white Vitro or Pussyfoot, with maoak post hinge seat and cover	30 75
Do., white Vitro or Pussyfot. with mahogany post hinge, seat and cover	31 00
Do., enamelled iron tank with oak post hinge seat and cover	30 75
Do., enamelled iron tank with mahogany post hinge seat and cover	31 00
Additions or reductions to above	
Add for reverse trap bowl	1 25
Add for syphon jet bowl	7 00
For ⅜ in. valve on supply pipe	1 50
Deduct for supply pipe	0 70
Deduct for floor flange and bolts	0 80
CLOSET BOWLS—	
Washdown bowl, less spud	10 00
Reversible trap bowl, less spud	11 25
Syphon jet bowl, less spud	17 00
"Richelieu" bowl	10 50
CLOSET TANKS, low down	
Oak, Vitro or Pussyfoot tank with fittings, less seat	18 10
White Vitro or Pussyfoot tank with fittings, flush elbow and supply	15 25
Vitreous china tank with fittings, flush elbow and supply	18 00
Enamelled iron tank with fittings, flush elbow and supply	18 00
CLOSET SEATS—	
Oak wood strip seat and cover	3 25
Oak post hinge seat and cover	4 00
Mahogany finish post hinge seat and cover	4 25

LOWER QUOTATIONS ON SHEETS AND PLATES

Toronto

An improved interest in sheets from manufacturing consumers is recently manifest, according to distributors, while the undertone to the market generally is described as improving. There has also been more life to recent inquiries, although business is still a little spasmodic in certain quarters. Prices have receded approximately twenty-five cents per 100 lbs. all through the list, this change being attributed to concessions for the more attractive orders tending to result in a lower market level. This downward revision is applicable on galvanized, black and blue annealed. Following are the new prices on sheets:

BLUE ANNEALED—		
10 gauge, base	3 50	4 25
12 gauge	3 55	4 30
14 gauge	3 60	4 35
16 gauge	3 65	4 40
BLACK—		
18-20 gauge	4 05	4 80
22-24 gauge	4 10	4 85
26 gauge	4 15	4 90
28 gauge	4 25	5 00

Charge of 25c. per 100 lbs., is made for less than case lots. An extra 10c per 100 lbs. is also charged on sheets 26 in. wide.

GALVANIZED—	Queen's Head.	Fleur-de-lis.
28 gauge	7 75	7 25
26 gauge	7 50	7 00
24 gauge	7 10	6 60
22 gauge	6 65	6 15
18 and 20 gauge	6 50	6 00
Premier and Apollo—		
10¾ oz.	5 75	6 50
U. S. 28, base	5 35	6 10
U. S. 26	5 05	5 80
22 and 24	4 90	5 65
18 and 20	4 75	5 50
16	4 60	5 35
12 and 14	4 45	5 20

An extra is now charged on galvanized sheets, 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20 cents per 100 pounds. Other gauges show no change for different widths.

An extra 40 cents per 100 lbs., is charged for Keystone and Premier brands copper-bearing sheets.

EXPECT ACTIVE SEASON FOR ENAMELLED WARE

Toronto.

The call for enamelled ware is described as just fair for this season of the year. While brisk activity has been noted in building circles, the lack of seasonable weather has hindered progress in this direction to some extent. With a large majority of construction consisting chiefly of dwellings and smaller erections, a fairly active season is generally anticipated for enamelled ware products. Following are unchanged quotations:

Enamelled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.	51 40
Do., 5½ ft.	57 10
Lavatories—	
17x10" Apron F139 or P4045	15 30
18x24" Apron F154 or P3845 or P3847	23 60
18x21" Apron F169 or P4205	17 60
18 x 21" Roll Rim, F197, F199 or P4655-6	15 40
17 x 19" Roll Rim, F241 or P4345	12 60
Sinks, Roll Rim, 16x24 in.	18 10
Do., 18 x 30 in.	23 00
Do., 20 x 30 in.	24 70

Sinks, Flat Rim—	3 only	2 only	1 only
16 x 24	$7 60	$7 70	$7 80
18 x 30	8 50	8 60	8 70
20 x 30	9 70	9 80	9 90

Above prices list, less 33 1-3 per cent.

All steel enamel baths, 4 and 4½ ft.	$14 00
Do., 5 ft.	15 00
Do., 5½ ft.	16 75

These quotations are net.

MODERATE TRADE NOW IN RANGE BOILERS

Toronto.

The current situation in range boilers is described as fairly good compared with the demand experienced at this time last season. While the total volume is still of moderate proportions, manufacturers and distributors both look for improvement in these markets, as soon as seasonable weather is evident. Stocks on hand are described as comparatively light in most cases, and purchases on the part of dealers and consumers continue to be for immediate requirements only. Following is the nominal list and discounts:

RANGE BOILERS

Size.	List Price.
5-gallon	$13 50
12 to 15 gallon	14 00
18-gallon	15 00
25-gallon	16 50
30-gallon	17 50
35-gallon	20 50
40-gallon	22 75
52-gallon	38 00
66-gallon	60 75
82-gallon	74 00
100-gallon	103 00
120-gallon	117 00
144-gallon	164 00
168-gallon	187 00
192-gallon	210 00

Discounts, Standard weight, 50 per cent.
Extra heavy, 40 per cent.

BRIGHT FUTURE IN RADIATOR MARKETS

Toronto.

Compared with this season in 1921, current business in radiators is described as good. While the volume of trade is yet moderate, the future looks exceptionally bright, according to the opinion expressed to Sanitary Engineer by manufacturers and distributors of these products. This brighter outlook is based upon the fact that building activity is in sight this year, whereas construction work was more or less of restricted nature during the previous season. Quotations on both radiators and boilers remain unchanged at the discount levels quoted in January. These are as follows:

RADIATORS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60.

Discount on 2, 3, 4 and 5-column standard sizes, 59 per cent. for water and 60 per cent. for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 51 per cent. for water and 52 per cent. for steam.

Discounts on 1-column hospital size, water 33 per cent.; steam 34 per cent.

Wall radiators—5 ft. $1.15; 6 ft. $1.10; 7 ft. $1.05; 9 ft., $1.05; 12 ft., $1.05. Discount 56 per cent.

ASBESTOS MARKET STILL IN QUIET CONDITION

Toronto

The asbestos market is still described as being in a soft condition, but manufacturers and distributors naturally expect a fair degree of improvement in the near future. The business outlook is generally brighter, and prices are remaining unchanged at the recent lower levels, which are as follows:

ASBESTOS—

Pipe Covering—

Air cell, 4 ply	55 per cent. off list.
Air cell, 3 ply	60 per cent off list.
Air cell 2 ply	65% off standard list.
Boiler Covering	$1.90 per bag.
Asbestos Sheathing	$8.00 per 100 lbs.

F.o.b. Toronto.

BAR PRODUCT PRICES MAY SOON STIFFEN

Toronto

It is stated that prices on bar iron and steel have now reached relatively lower prices than any of the other semi-finished steel products. The consensus of opinion points towards the possibility

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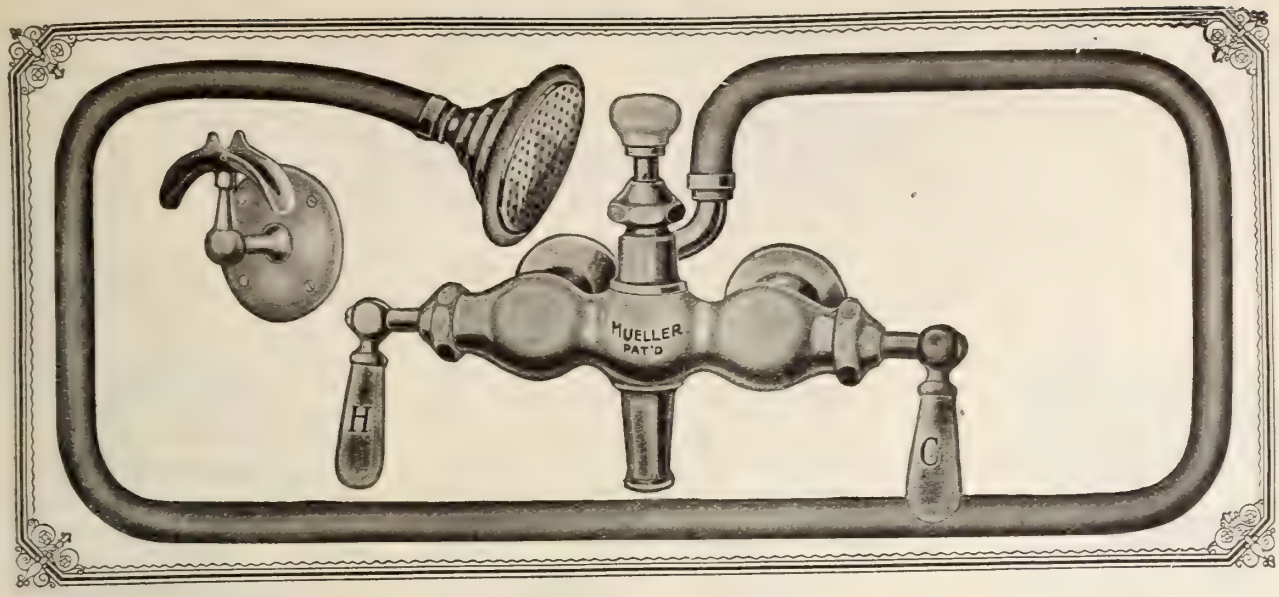


The A-2395 Mueller Tub Faucet bearing a price to consumers of $15.25 will be advertised in April 8th issue of Saturday Evening Post, reaching about 200,000 Canadian readers. This price does not include installation.

Canadian Plumbers' Price is $9.25

Order a stock of Tub Shower Faucets now to take advantage of the demand created by the advertising in the Saturday Evening Post.

H. MUELLER MFG. CO., LIMITED

Sarnia, Ontario

TORONTO MARKETS

Continued from page 46

of a stiffening in quotations in the near future. An effort in this respest was recently noted on southern primary centres, but beyond securing sufficient orders to enable the mills to run for some sixty days at the present rate of operation, price levels generally remain unchanged. The market locally is described as very competitive, but this condition has been more or less evident for several months. Some speculaton is evident as to just what effect a coal miners' strike upon extensive lines would have on the steel industry in general and how it would affect prices on bar products in particular. In the meantime the following quotations represent the average levels on the local market:

IRON AND STEEL

Mild steel bars, base	2 75
Mild steel bands, 3 16 in. base	3 25
Bar iron, base	2 75
Angle iron, base	2 85
Horseshoe iron	3 60
Tire steel	3 35
Spring steel	5 50
Crucible cast sheet steel	30 00
Mining drill steel	18 50
Cast tool steel, medium	18 00
Cast tool steel, high grade	31 00
Sleigh shoe steel	2 85
Norway iron	12 50
Toe caulk iron	4 00
Hoop steel	3 75

MORE ACTIVITY RECORDED IN BOILER TUBES

Toronto.

More activity is reported in the boiler tube market during recent weeks. Prices are remaining fairly steady, and with the tube season now at hand, it is felt in distributing circles that in view of the restricted volume of trade during recent months, a fair amount of current tube business is now opening up. Prevailing trade is said to show a very favorable comparison with this period last year, while an optimistic outlook is generally reported. Following are the average unchanged prices recorded on the domestic markets:

BOILER TUBES—

1 inch	24 75	.....
1-¼ inch	24 50	.....
1-½ inch	24 00	.....
1-¾ inch	26 00	.....
2 inch	24 50	20 00
2-¼ inch	27 75	23 00
2-½ inch	32 50	23 75
3 inch	40 00	30 00
3 ½ inch	50 00	32 50
4 inch	65 00	43 50

CAUTIOUS BUYING OF CORRUGATED SHEETS

Toronto.

The outlook in the corrugated sheet market as regards an improved volume of trade in the near future, is described as optimistic. With more seasonable weather prevailing, conditions are favorable to brisk activity in building circles, especially where corrugated and similar materials are required. With an improved demand developing in the near future, it is expected in some quarters that the nominal prices on the heavier gauges recently noted as subject to price shading according to specifications, will become more stabilized. On the other hand, some lowering in flat sheet quotations has given rise to the impression that a similar change may be looked for in corrugated. However, for the present, the following list prevails:

CORRUGATED SHEETS—	Per 100 Sq. Ft.
No. 28 gauge	$6 50
No. 26 gauge	7 00
No. 26, U. S. gauge	8 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50

Less 10 per cent.

Lighter than 24 gauge and wider than 27 inches, 75c a square extra.

OPTIMISTIC OUTLOOK IN WROUGHT PIPING

Toronto.

List No. 54, still governs the domestic pipe markets, with current conditions in this industry registering very little variation. Some development is noted in the primary steel markets where price shading between opposing interests is again reported, but domestic manufacturers and distributors report that no changes are, at present, being contemplated. Current business is described as comparing very favorably with the volume of trade last year, while increases are generally reported during recent weeks. With an improvement in basic market conditions during the ensuing months, the outlook is stated as generally optimistic. Following is list No. 54.

WROUGHT PIPE

Price List No. 54. December 22, 1921.

Standard Buttweld Pipe S/C

Size	Steel Blk.	Steel Galv.	Gen. Wrot. Iron Blk.	Gen. Wrot. Iron Galv.
⅛ in.	$6 00	$ 8 00	$	$ ....
¼ in.	3 84	5 94	7 20	9 30
⅜ in.	3 84	5 94	7 20	9 30
½ in.	4 85	6 46	7 31	8 93
¾ in.	5 87	7 71	8 86	10 70
1 in.	8 16	11 05	12 58	15 30
1¼ in.	11 04	14 95	17 02	20 70
1½ in.	13 20	17 88	20 35	24 75
2 in.	17 76	24 05	27 38	33 30
2½ in.	28 08	38 03	.....	.....
3 in.	36 72	49 73	.....	.....
3½ in.	47 84	63 48	.....	.....
4 in.	56 68	75 21	.....	.....

Standard Lapweld Pipe S/C

Per 100 feet.

Size	Steel Blk.	Steel Galv.	Gen. Wrot. Iron Blk.	Gen. Wrot. Iron Galv.
2 in.	$21 46	$27,38	$31,08	$37 00
2½ in.	31,50	40 05	46 80	56 16
3 in.	41 31	53 55	61 20	73 44
3½ in.	48 76	65 32	72 68	89 24
4 in.	57 77	77 39	86 11	105 73
4½ in.	66 04	86 36	1 04	1 24
5 in.	76 96	100 64	1 21	1 45
6 in.	1 00	1 31	1 57	1 88
7 in.	1 33	1 76	2 02	2 45
8L in.	1 40	1 85	2 13	2 58
8 in.	1 61	2 13	2 45	2 97
9 in.	1 97	2 59	2 97	3 59
10L in.	1 82	2 40	2 75	3 33
10 in.	2 35	3 09	3 54	4 28

quantity.

VIRGIN COPPER SHOWS SIGNS OF RECOVERY

Toronto

Brass and copper products remain at the recently revised price levels, with primary market conditions practically stationary. Further developments in quotations depend upon the future trend in virgin metals. These now show some signs of recovery from the recent depression, but quotations on the semi-finished products continue at the lower levels following:

BRASS—	
Sheets base, per lb.	0 21
Rods, base, per lb.	0 19
Tubing, base, per lb.	0 23
COPPER —	
Rods, base, per lb.	0 27
Soft sheets, plain, 1 oz. and heavier, lb.	0 28
Do., plain tinned, 16 oz. and heavier, per lb.	0 35
Do., polished and tinned, 16 oz. and heavier, lb.	0 40
Tubing	0 27

VERY LITTLE CHANGE IN SCRAP MATERIALS

Toronto.

There has been no appreciable change recorded in the waste material markets. Prices have remained fairly steady, but buying has continued on a hand-to-mouth basis. Copper scrap is still dull, although a few more sales have taken place. Owing to the light operations of various steel companies, the scrap iron market is also quiet. Dealers are therefore only purchasing in small quantities. There is very little business of any kind in scrap rubber at present. The following are the usual averages of dealers' nominal buying prices for fairly large quantities:

SCRAP MATERIALS—

Scrap Iron		
Gross Tons —		
Heavy melting steel (Hamilton)	11 50	$12 00
Borings and turnings	2 00	3 00
Rerolling rails	10 50	11 50
Scrap pipe	6 00	7 00
No. 1 railroad wrought	10 25	11 25
Steel turnings (Hamilton)	6 50	7 50
Agricultural malleable	10 00	11 00
Railroad malleable	11 00	12 00
Net tons —		
No. 1 cast	15 75	16 75
Stove plate	11 50	12 00
Grate bars	10 50	11 00
Standard car wheels	14 50	15 00
Scrap Metals.		
Heavy copper and wire	10 50	11 00
Light copper	8 00	9 00
No. 1 composition	9 00	10 00
No. 1 comp. turnings	6 00	7 00
Light brass	3 00	3 50
Heavy yellow brass	5 50	6 00
Heavy lead	4 50	4 75
Tea lead	2 00	2 50
Scrap zinc	4 00	4 25
Scrap Rubber.		
Boots and shoes	2 50	2 75
Lumbermen's rubber boots	1 50	2 00
Auto tires	0 50	1 00
Solid tires	0 75	1 25

EASIER PRICES APPEAR ON METAL MARKETS

Toronto.

Easier prices have now developed on the majority of ingot metals, this weakness being chiefly attributed to the fact that the current demand remains much smaller than the visible supply. Copper, tin, lead, spelter, antimony and aluminum are all affected, each metal recording lower quotations on both the domestic and primary markets The current consuming demand is very moderate, while stocks on hand retard any stimulant for future commitments.

COPPER—Trade in copper is described as moderately quiet. Domestic consumers have apparently fully covered their requirements for the current month, and there is another lull in home trade. Primary copper markets report that the export business is just fair. The better side of the situation appears to be in the improved demand for finished copper and brass products. A few inquiries have been noted, which are looked upon as testing the tone of the market. Prices locally are lower at 16½ cents.

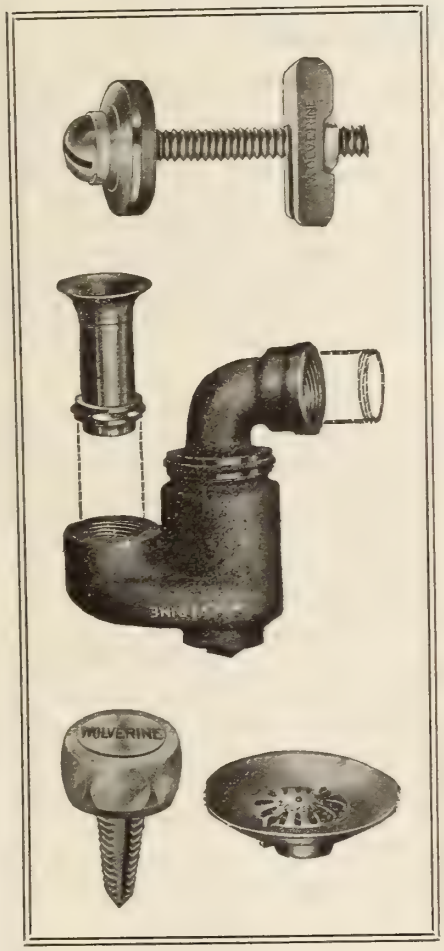
TIN—The tin market remains dull, with local prices easier. The demand is again a little quieter, but recent reports from other centres indicate that many consumers have availed themselves of the prevailing favorable opportunities for contracting for delivery of tin over a period of several weeks. The

WOLVERINE LIMITED

76 Nelson St. Toronto-

Some of our Metal Lines

Nickel Plated Adjustable and Deep Seal Traps
Simplex Cast Iron Traps and parts
Combination Bath Trap, Waste and Overflow
One piece basin and bath supplies
Basin connections, flexible joint
Dale ball cocks, kant leak floats and rods
Ball flush valves
Adjustable guides, stems and lever wires
Nickel plated solid and sectional floor and ceiling plates
N. P. chain, links, hooks and rings
Sink strainers, sink collars and sink bolts
Toggle bolts, expansion bolts an anchors
Floor flange bolts, brass heads, closet screws and washers
Wolverine toggle boiler repairs
Wolverine tap plugs
Pipe straps and pipe hooks
Vent caps and back water valves
Bar strainers and refrigerator drain traps



Some of our Rubber Lines

Syphon rings, tank packings and tank washers
Sure seat tank balls, stems and lever wires
Bolt fenders and bumpers
Sink stoppers and rubber plugs
Sink gaskets, bath and basin washers and waste washers
Fuller balls, blunt and tapered
Bibb washers of every description
Top washers, valve discs and slip joint washers
Gauge glass gaskets, hose, union, coupling and sink bolt washers
Diaphragms, sheet packing and rubber tubing
Pump sets, cup and leathers
Asbestos wicking and candle wicking
Wolverine closet augers and complete parts
Plumber's friends in all sizes
Spud, alligator and pipe wrenches
Tap and die and fine thread sets
Swedging tools, hack saws, blades, etc.
Reseating tools, perfection and stone drills
Thawing steamers, joint runners, melting pots, ladles and bending pins
Test plug rings, wiping cloths and joint holders
Bending springs, drift plugs and turn pins
Tap borers, shave hooks and plumber's levels

And Our Specialties

Wolverine Pipe Joint Cement
Stillson and Trimo Repairs, Fine Edge Cutter Wheels, etc.
Furnace and Furnace Repairs

Our business is specialties for plumbers and steamfitters.

Wolverine Products are absolutely guaranteed.

Mail us your specifications for your requirements. We give special attention to mail orders and can ship promptly. Good work can be produced and your customers satisfied with Wolverine Products.

fluctuations in Sterling exchange continue to interest this market. The local quotation is now around 34 cents.

LEAD—The current demand for lead is good, but the uniformity looked for in the primary markets is slow in developing. This slight variation in quotations is attributed to producers marking up prices on futures. The general condition of the lead markets is described as well-balanced, with the local figure now averaging $6.50.

SPELTER—The demand for spelter is rather light at present, but the general tone of this market remains fairly firm. Buyers are apparently not very active, but it is generally considered that consumption is proceeding on a scale at least equal to the ratio recorded during the previous few months. A note of optimism regarding the future outlook is observed in some quarters, the situation being described as nearing the end of the recent period of dullness. Local quotations have receded to the level of $6.50.

ANTIMONY—This market is said to be a little firmer on account of some recent buying for stock, but the current demand for immediate needs continues small. Stocks in general are heavy. The local market level hovers between 6 and 7 cents.

ALUMINUM—Prices on aluminum remain unchanged, and there is little to report in this market. The local situation is described as dull, with prices in the neighborhood of 26½ cents.

WINNIPEG MARKETS

WINNIPEG, March 31.—Black and galvanized sheets, corrugated iron, eavestrough and conductor pipe, and certain lines of brass compression goods, comprise the principal price changes noted on the current sanitary and heating markets. Each of these items are now on lower price levels, with quotations on other plumbing and steam-fitting materials generally remaining unchanged. Trade is noticeably quiet in cotton wastes and range boilers, but improved demand for such products as soil pipe, enamelled ware, and similar goods is looked for with the advent of the Spring and Summer seasons. A firmer tone is recorded in wrought piping.

QUOTATIONS ON SHEETS NOW ON LOWER LEVEL

Winnipeg.

New lower quotations have been received on black and galvanized sheets. Following are the new lower prices:

SHEETS—... ... ...

Black—10 Ga., $5.35 per 100 lbs. 12 Ga., $5.40 per 100 lbs. 14 Ga., $5.45 per 100 lbs. 16 Ga., $5.50 per 100 lbs. 18 20 $5.90 per 100 lbs. 22-24 $6.00 per 100 lbs. 26 $6.10 per 100 lbs. 28 $6.40 per 100 lbs.

Galvanized—16 Ga., $6.45 per 100 lbs. 18-20 $6.60 22-24 $6.75. 26 $6.90. 28 $7.20. 10¾ oz. $7.00.

REVISED PRICES ON PIPE AND TROUGH

Winnipeg.

Lower prices are quoted this week on eavestrough and conductor pipe. Following are the new reduced prices:

EAVESTROUGH—

8 in. $5.06 per 100 ft. 10 in., $5.63 per 100 ft. 12 in., $6.75 per 100 ft. 15 in., $9.38 per 100 ft.

CONDUCTOR PIPE—

2 in., $6.19 per 100 ft. 3 in., $7.13 per 100 ft. 4 in., $9.00 per 100 ft. 5 in., $12.75 per 100 ft.

PRICE DECLINE NOTED ON CORRUGATED SHEETS

Winnipeg.

Local quotations on corrugated sheets have now been reduced, and the new levels are placed in the hope of stabilizing the market in anticipation of future spring trade in these products. Following are current revisions:

CORRUGATED—

Galvanized—28 Ga., $6.42 per 100 lbs., 26 Ga., $5.65 per 100 lbs.

Painted—28 Ga., $5.35 per 100 lbs. 26 Ga., $5.40 per 100 lbs.

LOWER QUOTATIONS NOTED ON COMPRESSION GOODS

Winnipeg.

Another revision in the discounts of certain lines of compression goods has been recorded. This current change affects standard compression bath cocks, brass steam cocks, and basin cocks. Following are the revised discounts:

COMPRESSION GOODS—

	Per Cent.
Compression work standard	40-5
Fuller work	25
Bath cocks, compression	30
Do., Fuller	20
Basin cocks	30
Pantry cocks	28

QUIET TRADE NOTED IN RANGE BOILERS

Winnipeg.

There has been no change recorded in range boiler prices for some little time. Current trade is described as quiet, but improvement in this direction is generally looked for in the near future. Following are the unchanged prices:

RANGE BOILERS—

30 gal. $9.60 ea.; 35 gal. $13.25 ea.; 40 gal. $16.25 ea.; 52 gal. $23.45; 66 gal., $33.15; 82 gal. $40.60; 100 gal $62.50 ea.; 120 gal., $75.00.

DULL TRADE REPORTED IN COTTON WASTES

Winnipeg.

Cotton waste prices remain at the revision of a month ago, when the higher grades were slightly reduced. The present season is somewhat slow at any time, but it is exceptionally backward this year. The unchanged prices are as follows:

WASTE, COTTON—

Cream polishing, 29c. per lb. White XXX Extra 18½c. per lb.; XX Grand 17½ per lb.; XLCR, 16½c.; X Empire 15c.; X Press, 14½c.

Colored—Fancy 15½c.; Lion 14c.; Standard 12½c.; Popular J 11c.; Keen 9½c. per lb.

LOOK FOR IMPROVEMENT IN SOIL PIPE TRADE

Winnipeg.

With the approach of the spring and summer seasons, an improvement in the demand for soil pipe and fittings is generally anticipated. The brisk activity noted in building circles, is naturally expected to reflect a more uniform movement in these products. Discounts at present, remain unchanged, as follows:

SOIL PIPE—

2 and 3 in., 20 per cent. off; 4 inches, 30 per cent. off.; 5 and 6 inches 25 per cent off.; 8 inches 10 per cent adv.

Fittings—2 and 3 inches, 40 per cent. off; 4, 5 and 6 in., 45 per cent.

STRONGER TONE RECORDED IN WROUGHT PIPING

Winnipeg.

It is reported that the pipe market is distinctly stronger than it was a few months ago. With the open season there has developed a fair amount of current business and manufacturers state that the general situation now looks much improved. Prices have not changed for some time. The current quotations are as follows:

BLACK PIPE

F.O.B.	Winnipeg	Calgary, Edmonton, Lethbridge & Medicine Hat.	Saskatoon.	Regina.	Brandon.
LIST NO. 54.					
⅛	$ 6 25	$ 0 28	$ 0 20	$ 0 17	$ 0 11
¼	4 52	0 47	0 34	0 30	0 19
⅜	4 67	0 62	0 45	0 40	0 26
½	5 95	0 94	0 67	0 59	0 38
¾	7 20	1 25	0 90	0 79	0 51
1	10 04	1 85	1 34	1 17	0 75
1¼	13 60	2 51	1 80	1 57	1 00
1½	16 26	3 01	2 15	1 88	1 21
2	21 88	4 04	2 88	2 52	1 62
2½	34 61	6 40	4 60	4 02	2 68
3	45 26	8 38	6 03	5 28	3 39
3½	58 88	10 12	7 20	6 30	4 05
4	69 75	11 97	8 53	7 46	4 80
4½	81 22	13 91	10 04	8 75	5 62
5	94 73	16 30	11 60	10 15	6 52
6	122 86	21 10	15 00	13 14	8 44
7	181 18	26 14	18 62	16 28	10 46
8L	190 38	27 50	20 00	17 50	11 25
9	267 05	37 60	26 96	23 59	15 16
10L	248 00	35 20	25 60	22 40	14 40

GALVANIZED PIPE

⅛	$ 8 50	$ 0 28	$ 0 20	$ 0 17	$ 0 11
¼	7 04	0 47	0 34	0 30	0 19
⅜	7 09	0 62	0 45	0 40	0 26
½	7 89	0 94	0 67	0 59	0 38
¾	9 41	1 25	0 90	0 79	0 51
1	13 50	1 85	1 34	1 17	0 75
1¼	18 29	2 51	1 80	1 57	1 00
1½	21 87	3 01	2 15	1 88	1 21
2	29 43	4 04	2 88	2 52	1 62
2½	46 54	6 40	4 60	4 02	2 68
3	60 86	8 38	6 03	5 28	3 39
3½	77 65	10 12	7 20	6 30	4 05
4	92 00	11 97	8 53	7 46	4 80
4½	105 60	13 91	10 04	8 75	5 62
5	123 15	16 30	11 60	10 15	6 52
6	159 70	21 10	15 00	13 14	8 44
7	.....	26 14	18 62	16 28	10 45
8	.....	27 50	20 00	17 50	11 22

MAINTENANCE OF PLUMBING INSTALLATION

(Continued from page 24)

not do some boosting toward getting such clause inserted in their own local by-law, which would in some way maintain the work as it should be—safe and sanitary to the general public.

In conclusion I might say that the wonderful progress in sanitation is mainly due to the combined efforts of those interested in the trade in demanding and working for the adoption of sanitary regulations and laws. We have as a consequence what is generally styled "Modern Plumbing" and I would therefore ask you, gentlemen, to do all you can to keep it as such by boosting a maintenance clause demanding a periodical reinspection of all systems.

Plate 2-RM

Plate 105-RM

Plate 343-RM

The R. & M. Trap Cleanout

(Patented)

The object of a Trap Clean-out is to provide a means of ready access to the trap of a closet for the purpose of cleaning it out if clogged.

Not only does the R. & M. Clean-out device provide for this in the most simple and effective manner possible, but it practically eliminates the necessity of using the various tools or instruments which heretofore have had to be used upon such work.

The construction of the plug itself is very simple —the only labor necessary to make use of the device being the removal of the screws holding the cover plate in position.

It is produced in solid brass and is fastened to the earthenware in such a manner as to make leakage either of water or sewer-gas impossible. It is also located in such a position on the closet as to make the greatest length of trapway accessible to the opening when in use.

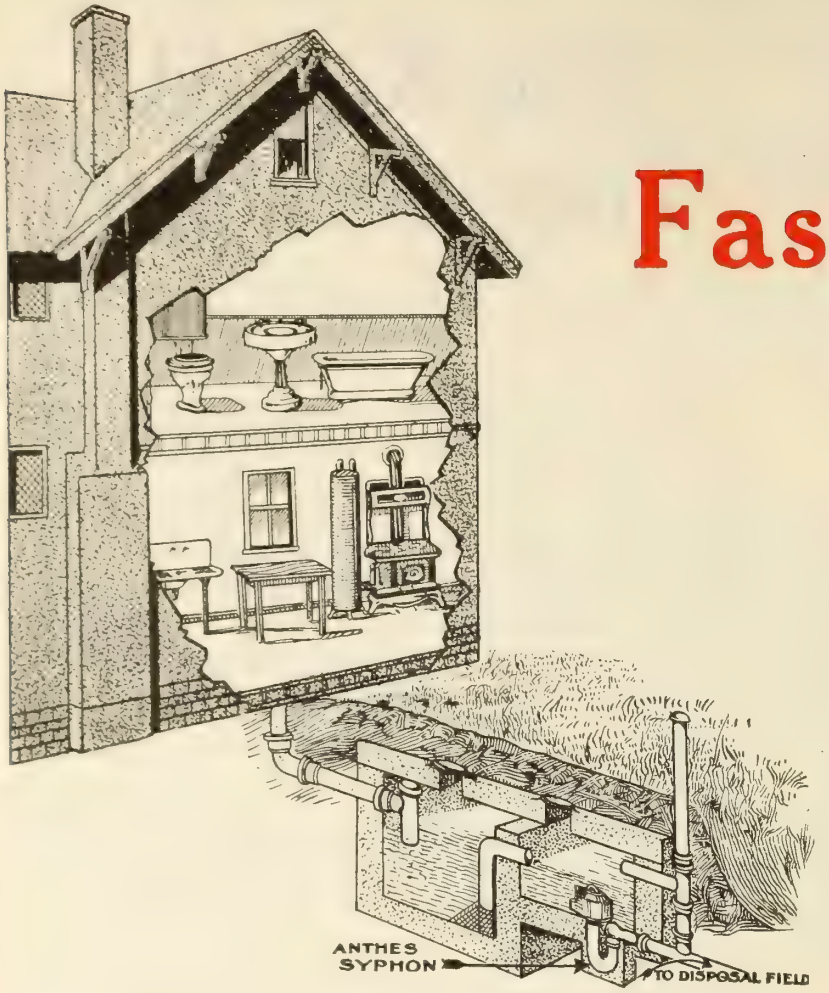
Plate 2-RM illustrates our "Old Twin" Syphon Jet equipped with this feature; Plate 105-RM similarly illustrates our "A-1" Syphon Action Washdown and Plate 343-RM our "Classic" Reverse Trap Washdown so equipped.

The nominal cost of this very good feature is inexpensive insurance against excessive bills for time employed clearing clogged traps.

CANADIAN POTTERIES
LIMITED
SAINT JOHNS
QUEBEC

Sales handled exclusively through recognized jobbing houses

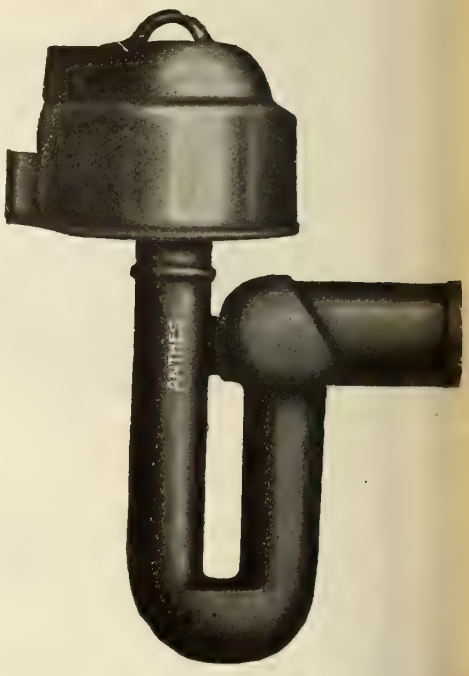
Fast Nickels



FAST nickels are better than slow dimes any day in the week—but we have to work harder to make them come fast.

This summer you Sanitary Engineers in the rural districts will have a good many slack days on your hands. Overhead will go on just the same. You must maintain your staff in the slack season as every other business does. That's so, isn't it?

You can make the slack summer months the best paying months in the year by linking up with the Anthes plan. Here's how—



and Slow Dimes

Few rural homes have sewage disposal systems and they all need them. But they don't all know how much they need them. They must be shown the many advantages before they will buy.

How long do you suppose Pa Jones and his family are going to put up with the discomforts of the out-door toilet after you show them the comforts which a water and sewage system will give.

Have every man on your staff devote his spare time in getting out and showing people what water sewage systems mean and how little they cost in comparison to the value received.

There are hundreds of prospects right in your locality which mean thousands of dollars in your pocket for the mere going after them.

Our Bulletin No. 2 tells all about it. Send for one to-day.

Anthes Syphons are made in one piece, without seam or joint, and, operating on purely natural laws, with no moving parts to get out of order, they give great satisfaction in use.

Anthes Syphons will make friends for you. Every installation means satisfaction on the part of the customer that will bring him back to you every time he is in the market for anything in the plumbing line.

Remember—when you install a sewage system—you also open up a market for electric water systems, closets, baths, wash basins, laundry tubs, sinks and a lot of other plumbing equipment.

"Mixed Farming and Mixed Plumbing."

Sad experience has taught the farmer that it is not a wise policy to carry all his eggs in one basket.

Wheat-growing alone only is rapidly giving way to mixed farming, with the result that the farmer, while having to dig a little harder, is extending his market without having to go far afield to do it.

So with the plumber. There are fertile markets which lie almost at his door, but he must do a little digging to get them.

The farmer has found that the town-dweller will buy his produce and reciprocate trade results.

The hardware man is getting some, so is the grocer, the dry-goods man, the automobile salesman, etc.

"Why not the plumber?"

Go to it.

L. L. Anthes

Anthes Foundry

Limited

Toronto and Winnipeg

Manufacturers of
Cast Iron Soil Pipe & Fittings

Let "Allpriser" cut your Overhead

¶ Allpriser represents the difference between profit and loss.

¶ It is a reliable Price Clerk and insures your business against heavy losses through errors in misquoting buying and selling prices.

¶ It is accurate and may save you considerable on your annual business.

¶ Ask the man who is using it.

Did you overlook sending us your order for Valve Tags and Stock Bin Labels of which we mailed you samples?

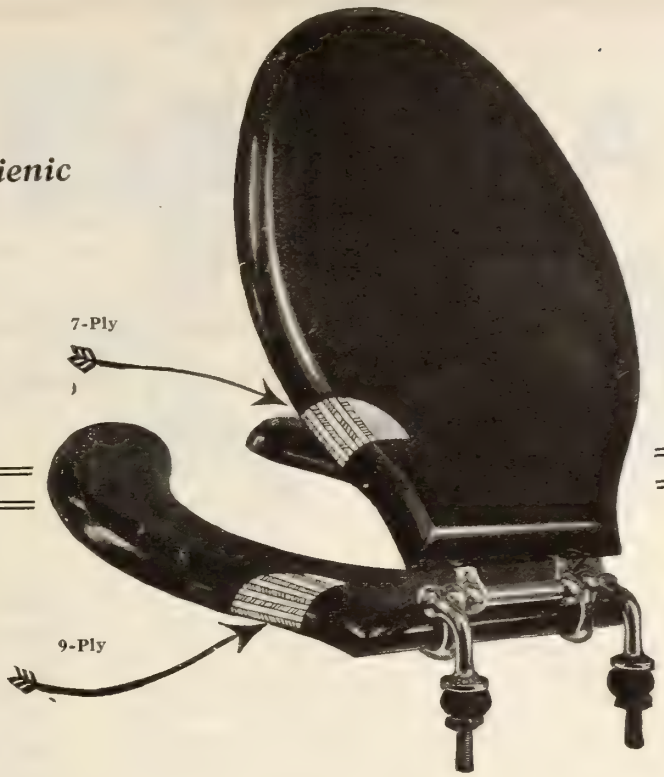
Write us now while you have it in mind.

Kenneth B. Allison

4 Irwin Ave. -:- Toronto

"EVERLASTING"

Veneer Toilet Seat—Strong, Clean, Hygienic



Air-seasoned Veneer

And Our Special Wood Cement

Air-seasoned wood veneer in 7 and 9-plys, according to the amount of strain and wear required of its respective parts, makes this a substantial seat, unequalled for durability. The veneer is held together by means of our special wood-cement that is proof against extremes of heat, cold and dampness.

For cold, damp basements, schools, factories, or other public places where the closets are subjected to all manner of abuse or rough usage, it is specially recommended. The Everlasting Veneer Toilet Seat will never crack, warp or split.

Canadian Veneering Company
Incorporated

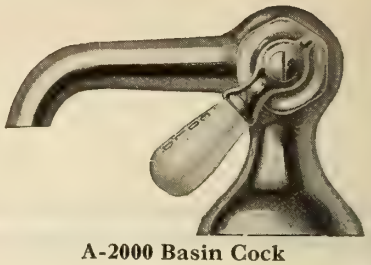
Acton Vale, Quebec, Canada

"Just ask for samples in comparison with any other make"

APPRECIATION

A-1900 Basin Cock

We never say half enough to hearten the man whose work is well done.



A-2000 Basin Cock

A fine job, a job that has taken conscientious thought, painstaking effort, and scientific skill to produce is too often taken for granted and the craftsman must get along without the smile and the glow and the twinkle of appreciation that his daily habit of doing the job right should bring forth.

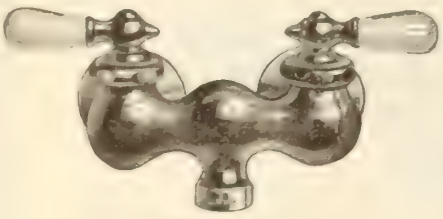
The Plumber when he thinks it over must suffer heartbreak, sometimes this bodily organ splitting crosswise, sometimes straight up and down, and at others literally shivered throughout.

The Plumber is the custodian of the community health—when he slumbers or sleeps or slacks on his underground work, his between wall work, or underfloor work, he leaves in his wake uncanny cesspools—ready for use Germ Incubators for wily, tiny germs, typhoid, malaria, and the whole hideous host of infection.

This "concealed plumbing" that the plumber installs with a conscience and skill brings usually no man's commendation, no approval, no say so.

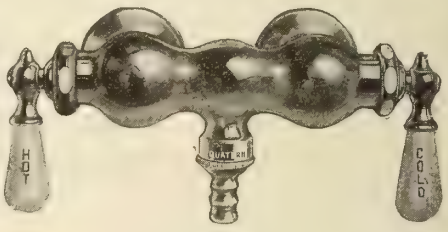
But still the plumber has an important alternative—those **brightly nickeled, porcelain mounted bath cocks, basin cocks, bibbs, sink faucets** and the up-to-date **Classic Mixing Faucet** are for the plumber the fruit of his tree, the flowering of his skill and effort.

If the plumber will crown his installations with **Quaturn Plumbing Fixtures,** the uniform and harmonized line, designs of grace and beauty, with **interchangeable and renewable** features of greatest utility the **good housewife,** radiating appreciation will say, "Isn't that splendid. I must ask Mrs. Climber to come right in and see it, they will want to be fixed up too."



A-3200 Bath Cock

And the plumber will make himself "Jake" with the whole neighborhood and have his just reward—appreciation.



A-3500 Bath Cock

The Wallaceburg Brass & Iron Manufacturing Co., Limited

WALLACEBURG, ONT.

TORONTO:
Mr. L. N. Vanstone, 10 Wellington St. East
Telephone: Main 2355

MONTREAL:
G. M. Price, 10 Victoria St.
Telephone: Uptown 945

WINNIPEG:
Moncrieff & Endress, Ltd. Galt Bldg.
Telephone: A 9135

Another Winner

The April 15th Issue of
Sanitary Engineer
will be

Hamilton Convention Number

While this number will be of more than ordinary interest to every Domestic Sanitary and Heating Engineer in Canada, it will be most eagerly looked forward to by the Trade in Hamilton and district, most of whom will attend the big Convention of the Ontario Society in that city on the 6th, 7th, and 8th of this month.

In this number, the full report of the convention proceedings will be given.

Hamilton as the Convention City will loom big before the trade from coast to coast.

Surely an opportune number for the Hamilton manufacturer to place his message before the Trade.

Here Are That You Will Feel

Your efforts to satisfy your clients in connection with any drainage work will be more than rewarded if you recommend these reliable cast iron pipe fittings, made with iron of high tensile strength and correct tappings.

INTERNATIONAL Company
GUELPH

Representatives :
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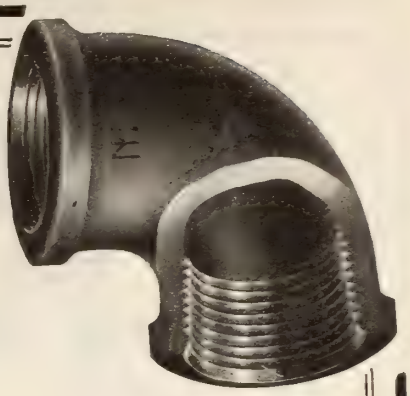

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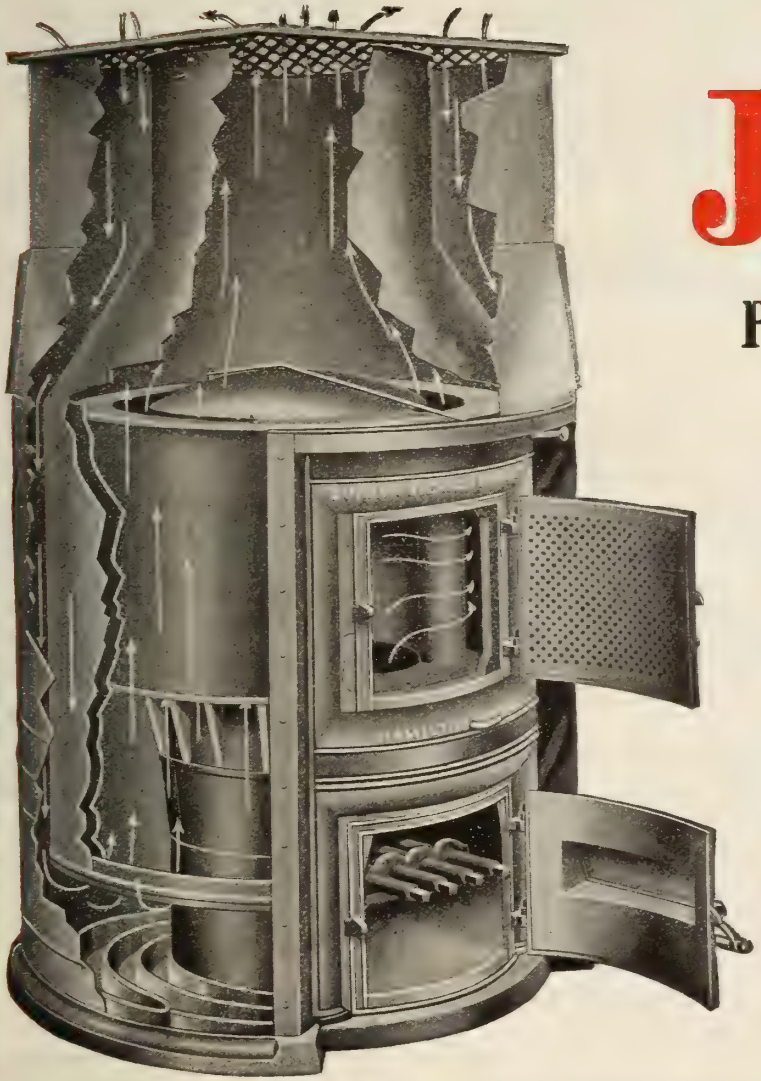

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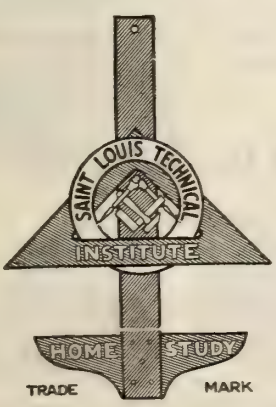

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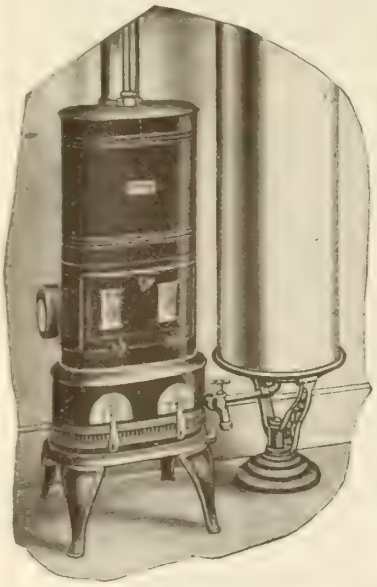

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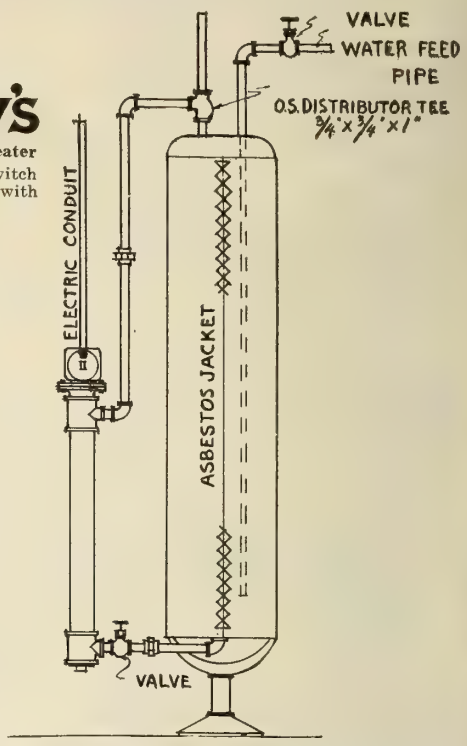

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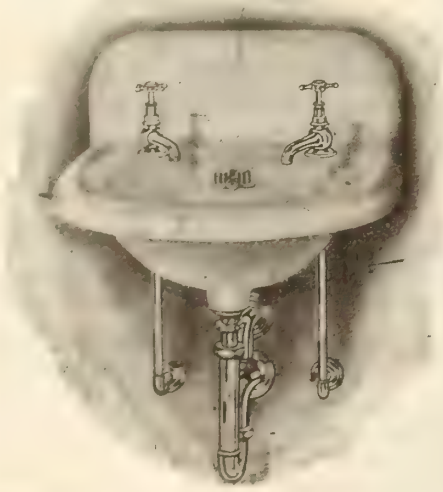

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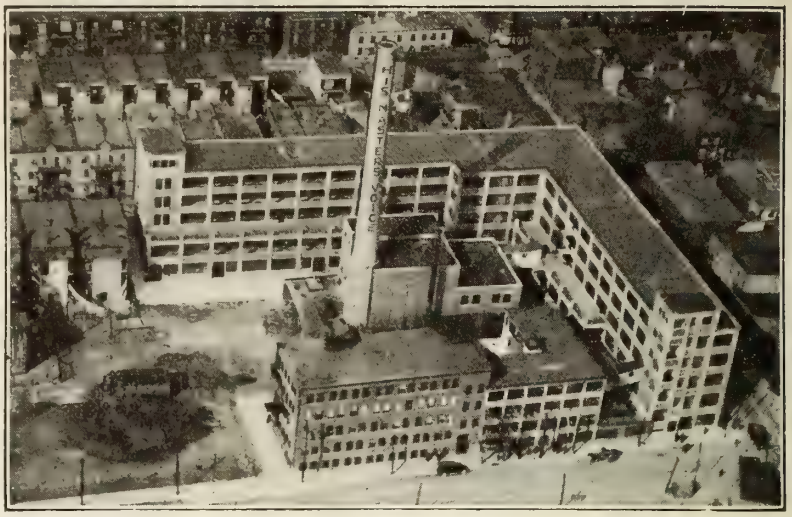

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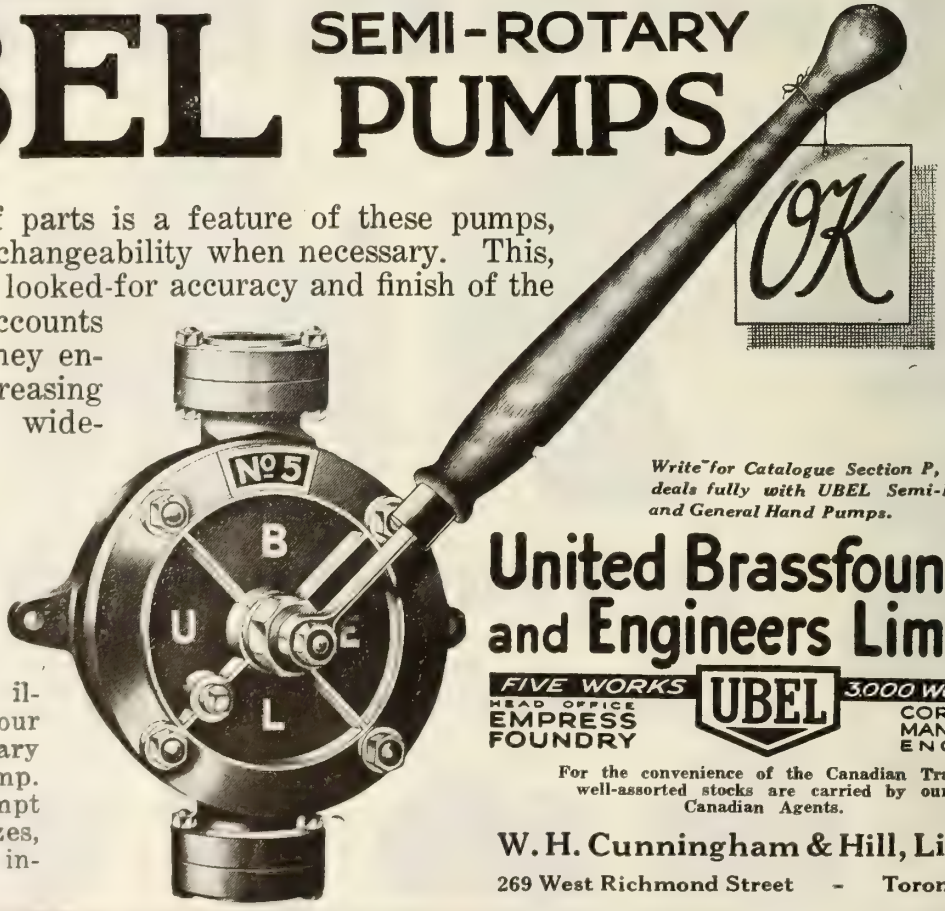

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Write for Catalogue Section P, which deals fully with UBEL Semi-Rotary and General Hand Pumps.

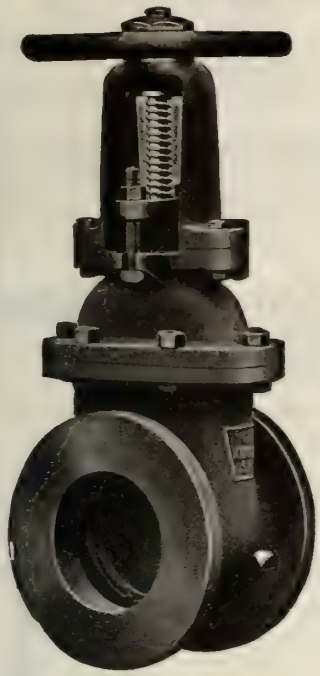
United Brassfounders and Engineers Limited

FIVE WORKS — HEAD OFFICE EMPRESS FOUNDRY — UBEL — 3,000 WORKERS — CORNBROOK MANCHESTER ENGLAND

For the convenience of the Canadian Trade well-assorted stocks are carried by our Canadian Agents.

W. H. Cunningham & Hill, Limited

269 West Richmond Street - Toronto, Ont.



Kerr Valves

Give

Character to Work

They reflect credit on the man who specifies them, the man who installs them, and they give complete satisfaction to the men who use them.

Take the Kerr Gate Valve illustrated, for instance: It is well designed; strong and sturdily made; note the compact and narrow face to face dimensions; observe the accessibility of the stuffing box; the strong, generous flanges and the properly spaced bolting.

KERR VALVES ARE GOOD VALVES

Catalogue No. 5 on application.

The Kerr Engine Co., Limited

Valve Manufacturers - Walkerville, Canada

TRADE MARK J.M.T. REGISTERED A GUARANTEE OF QUALITY

True Economy

Stack Heater

The Stack Gas Water Heater will heat water in one minute.

The almost perpendicular copper pipes in the Stack Heater offer no hindrance to the natural tendency of water to rise when heated.

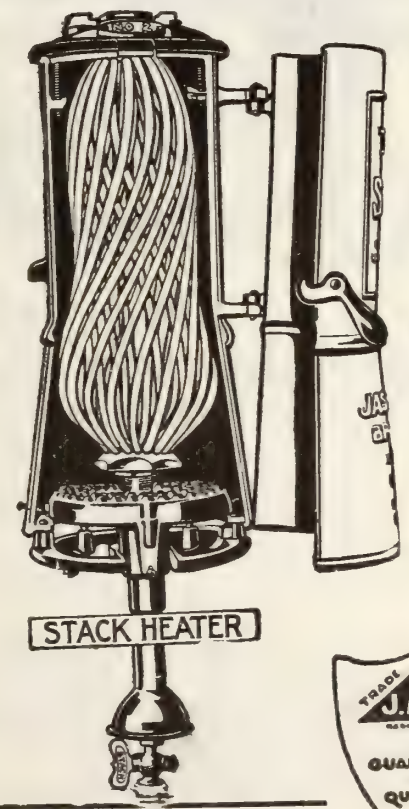
Take notice of the small size and large number of coils; this means quick heat. The numerous small pipes will naturally heat water quicker than one big pipe because of the greater heating surface offered.

More hot water with smaller consumption of gas—that's true economy.

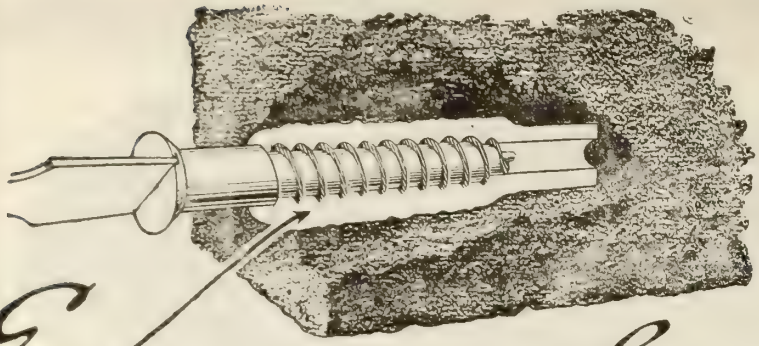
Send for a Stack Heater Display Card

The James Morrison Brass Mfg. Co. Limited

93-97 Adelaide Street West, Toronto, Ontario



TRADE MARK J.M.T. REGISTERED A GUARANTEE OF QUALITY



Expansion means Grip!

RAWLPLUGS

The screw or the material will give way before the Rawlplug.

Rawlplugs are plugs that may be inserted into concrete, brick, plaster, slate, metal, stone, tile, marble, glass or hard rubber.

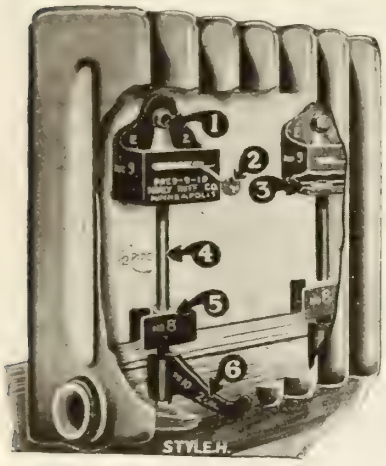
They are manufactured tubes of fibre strands, stiffened lengthwise. The strands are so interwoven and cemented as to withstand weather and wet. They will not decay.

Rawlplugs expand as the screw is turned in, becoming an integral part of the material in which they are inserted.

Samples and price list on request.

Inventions Limited

Sole agents for The Rawlplug Co. of Canada, 128 Bleury Street, Montreal.
The Rawlplug Co., 461 8th, Ave., New York.



E-Z Radiator Hanger

Style "R"

Manufactured in Canada

(1) One Bolt.
(2) Invisible Washer.
(3) Horizontal Adjustment.

Reasonable in Price

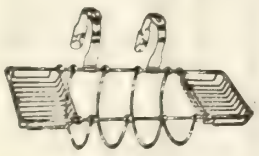
(4) Vertical Adjustment.
(5) Baseboard Adjustment.
(6) Made for Wall and Column Radiation.

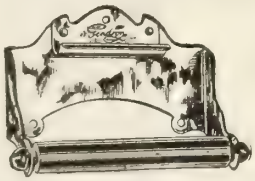
HEALY-RUFF CO. Minneapolis, Minn.

J. H. Leonard, Tribune Bldg., Winnipeg
D. G. Brison, Standard Bank Building, Vancouver
A. Walker, 514 McLean Bldg., Calgary.
E. T. Flanigan, 229 College St., Toronto.
Eager Coombs & Co., Ltd., Halifax, Can.
Shaver Bros., Booth Bldg., Ottawa
S. T. Hadley, 304 University Street, Montreal.

TORONTO Gendron CANADA

Bathroom Fittings and Hardware Specialties





a guaranteed line of high quality at moderate prices.

Write for Catalog

Made Only By

The Gendron Mfg. Co., Limited Duchess St., Toronto

TORONTO Gendron CANADA

FIRST-CLASS PLUMBER TO JOIN GOING concern in partnership. Write experience and capital at disposal. Box 12 Sanitary Engineer.

ONE J. & J. TAYLOR SAFE, INSIDE DIMENSIONS 15 inches deep, 2 feet 6 inches wide, three feet 11½ inches high and fitted with a built in compartment. Price $250.00.

One J. & J. Taylor Safe, 18 inches deep, two feet 9 inches wide, four feet 5 inches high, fitted with a steel compartment. Both safes are in good condition and can be bought at a price that will save considerable money to the purchaser. Price $200.00. Box 15, Sanitary Engineer. 153 University Avenue.

CASH REGISTER WANTED. SINGLE DRAWer, receipt printer. Must be in excellent condition. Box 16, Sanitary Engineer.

PLUMBER AND TINSMITH, WITH 20 YEARS experience in all branches of the business. Will be at liberty in March to take charge of shop. Box 10, Sanitary Engineer.

THE TRADE
Is Respectfully Cautioned
to specify

RIVETED RANGE BOILERS

Made by the old reliable

TORONTO HARDWARE MFG. CO., LIMITED

The GREAT POINT About Burnham Grates

The great point is that they operate in two sections—front half and back half. This takes the back "breaks" out of shaking, but puts savings into coal bills. Grates operating half at a time mean that you can have only half a fire when you don't need a whole one.

Send for our booklet about this.

Lord & Burnham Co. Limited of Canada
Boiler Department

Royal Bank Bldg., Toronto

Burnham Cosy Comfort Heat BB

Factory: St. Catharines, Ontario

BAYER & CO.

HEATERS, PLUMBERS, ETC.

Gurney's Stoves and Steel Ranges

539 George Street,
Sydney, N.S., July 14, 1920.

The MacLean Pub. Co.,
Toronto.

Dear Sirs:

We consider The Sanitary Engineer a good publication.

For the business man who wants information quickly about the market, The Sanitary Engineer is serviceable. For the builder, it is interesting and valuable, with its current statistics. Its editorials are advanced, practical and authentic. Its question box is a good department for the student, and we make the assertion that its very up-to-date price list is in itself worth the entire price of the yearly subscription.

We wish The Sanitary Engineer every success.

Yours truly,
BAYER & CO.

AMONG a plumber's best friends are his tools and, among his tools, many a plumber claims Williams' "Vulcan" Chain Pipe Vise as his best friend.

It's the *only* Pipe Vise made entirely of wrought steel. 3 sizes for ⅛ to 8″ pipe.

Ask Your Dealer. Literature?

J. H. WILLIAMS & CO. Limited
"The Drop-Forging People"
77 Thorold Road St. Catharines, Ontario

PLUMBERS WHO USE OUR

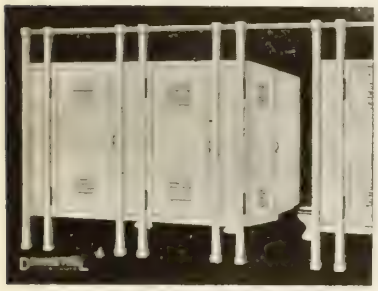
TESTED Soil Pipe

SAY IT SAVES TROUBLE

Manufactured by

FORWELL FOUNDRY, LTD.

KITCHENER, ONT.



Harmonize with Decorative Effects

The value of STEEL Lavatory Partitions in Schools Factories, Industrial Plants and Public Buildings, needs little argument to the Sanitary Engineer or Plumber.
Their fireproof, indestructible and hygienic qualities are readily recognized.
One point that must be driven home is that

DENNISTEEL
Made in Canada
STEEL LAVATORY PARTITIONS

can be harmonized without difficulty to most elaborate porcelain wash bowls, urinals, showers, etc. The steel surface takes the enamel smoothly and can be easily decorated to white, marble, porcelain or other harmonizing effects.

Write for folders.

THE DENNIS WIRE AND IRON WORKS CO. LIMITED
LONDON
CANADA

Halifax
Ottawa
Montreal
Toronto
Hamilton
Windsor
Winnipeg
Calgary
Vancouver

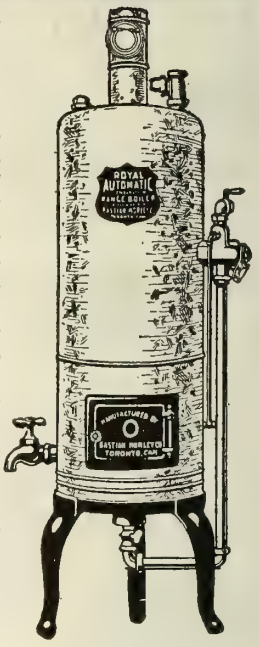
THE Royal

Automatic Gas Water Heaters

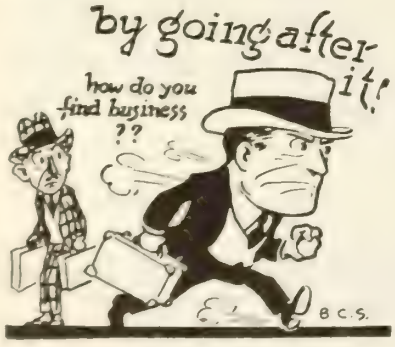
Make More Money for you

You can sell a Royal "Automatic" at present low prices as readily as you can sell an ordinary heater. You'll make more money—a larger discount and a more easily installed job.
Besides, the Royal "Automatic" gives you a bigger market. Every home needs the constant hot water service the Royal "Automatic" gives. Every dentist and doctor will value its convenience. No barber shop is completely equipped without it. Clubs, hospitals, apartments, schools, theatres, restaurants—there's a type of "Royal" to meet every need for instant hot water service.

Sold only by or through plumbers. Write for descriptive literature and full information. Today!



Bastian - Morley, Ltd.
195 Victoria St., Toronto



¶ Yes, it takes a lot of going after, all right.

¶ The fellow who hasn't got everything at his finger tips is a back number today.

¶ Sanitary Engineer will "keep you hep" to what's happening in the plumbing, heating and tinsmithing field.

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Unrivalled Facilities for Success in Sanitary Engineering and more than 300 other Vocations

In no branch of Mechanical Science has there been more noteworthy progress than in Plumbing, Heating and Ventilation, and no other Educational Institution has trained so many splendid successes in it as the International Correspondence Schools. The spare-time home-study method of learning is wonderfully suitable for the young mechanic who must continue to earn while he learns to earn more.

Heating and Ventilation, once regarded as incidental features of building constructions are now considered as items of extreme importance, requiring for their design and installation the attention of specially trained experts. This new order of things has made technical education a necessity for the man who hopes to hold a position of any importance in the Plumbing, Heating or Ventilation field of Engineering.

In the last 30 years many thousands of Canadians have profited from the training of this Institution which created the method of teaching by correspondence and has provided unrivalled texts for home instruction. These texts are formed into more than 300 courses, each easy to study, easy to remember, and easy to apply and supplemented by a highly qualified faculty that give personal attention to every student throughout his progress to knowledge and efficiency.

Thus the I.C.S. provide you with the best and most convenient opportunity of self-advancement you can find anywhere. Let us help you in Sanitary Engineering or any other vocation you prefer. We can give you the training you need right at your home in your spare time. As a first step, mark the coupon and mail it to Montreal. You'll receive a most interesting booklet in return.

TEAR OUT

INTERNATIONAL CORRESPONDENCE SCHOOLS CANADIAN, LIMITED

Box 211-B, 745 St. Catherine St., W. Montreal, Canada

Explain, without obligating me, how I can qualify for the position, or in the subject, before which I mark X.

☐ ELECTRICAL ENGINEER	☐ Private Secretary
☐ Electric Lighting	☐ Business Correspondent
☐ Electric Car Running	☐ ADVERTISING MAN
☐ Electric Wiring	☐ SALESMANSHIP
☐ Telegraph Expert	☐ Window Trimmer
☐ Practical Telephony	☐ Show Card Writer
☐ Mechanical Engineer	☐ Outdoor Sign Painter
☐ Mechanical Draftsman	☐ RAILROAD POSITIONS
☐ SHIP DRAFTSMAN	☐ Gas Engineer
☐ Machine Shop Practice	☐ Civil Engineer
☐ MINE FOREMAN OR ENG'R	☐ Surveying and Mapping
☐ Metallurgist or Prospector	☐ ILLUSTRATOR
☐ STATIONARY ENGINEER	☐ DESIGNER
☐ Marine Engineer	☐ BOOKKEEPER
☐ ARCHITECT	☐ Stenographer and Typist
☐ Contractor and Builder	☐ Cert. Public Accountant
☐ Architectural Draftsman	☐ Railway Accountant
☐ Concrete Builder	☐ GOOD ENGLISH
☐ Structural Engineer	☐ Common School Subjects
☐ PLUMBING AND HEATING	☐ AGRICULTURE
☐ Sheet Metal Worker	☐ Textile Overseer or Supt.
☐ CHEMICAL ENGINEER	☐ Navigator ☐ Spanish
☐ Pharmacy	☐ Poultry Raising ☐ Teacher
☐ BUSINESS MANAGEMENT	☐ AUTOMOBILES ☐ Banker

Name _____ 7-1-21

Occupation & Employer _____ Business Address _____

Street and No. _____

City _____ Prov. _____

WROUGHT PIPE

Suitable for the approaching period of building activity, road construction, etc. This is a line of great importance in making successful, profitable contracts. Our C. T. Brand of Wrought Pipe has been

THOROUGHLY INSPECTED

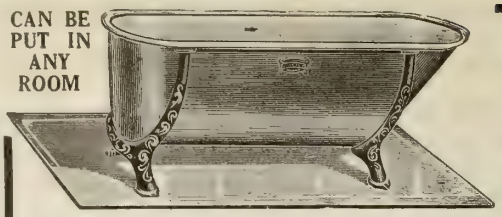
by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes ⅛-in. to 4-in. Black or Galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your Jobber for C. T. Brand Wrought Pipe

Can adian Tube and Steel Products Co., Ltd.

Operating Canadian Tube and Iron Co., Limited
Works at Lachine Canal, Montreal

CAN BE PUT IN ANY ROOM



PROFITS IN COUNTRY TRADE

This advertisement is of interest to you if you number amongst your customers people who do not have the advantages of city conveniences.

TWEED ENAMELLED STEEL BATHS

—made of galvanized steel, enameled, and installed without plumbing—give country folk the advantages of a modern bathroom at a very small cost. Write us for price lists and further particulars about these baths, the "Tweed" Sanitary Closet and other home conveniences.

THE STEEL TROUGH AND MACHINE CO., LIMITED
Tweed, Ont., Canada.

Louis A. Payette, 304 University St., Montreal,
Quebec and Eastern Representative.

Tapped Closet Bend

Easier to attach

More permanent

Cost less

Easily Cleaned

The APEX Closet Bowl has special features that place it in a class by itself.

Clean-out device located at head of trap. Any obstruction can be located and removed in five minutes without disconnecting from floor or water. **Cannot overflow.** Silent in operation.

Find out all about the APEX before installing another closet bowl. Canada Patents for sale.

THE APEX SUPPLY CO.

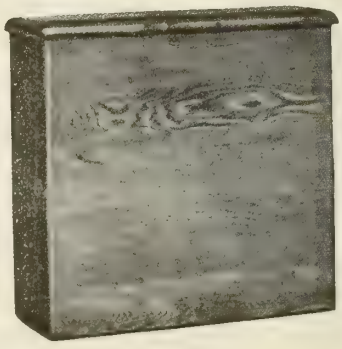
203 E. STATE ST.
TRENTON N.J.

Mr. Sanitary Engineer

Ask your jobber for No.4 Somerville Combination Self Venting Fitting. Canadian rights fully covered.

Somerville Iron Works

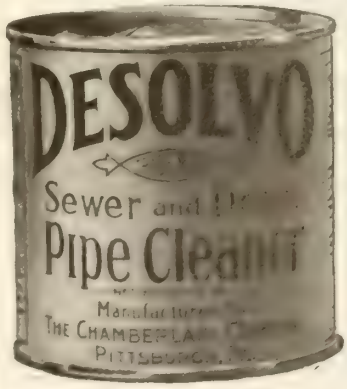
Somerville, N. J.



Bull Dog
Brand
Seats & Tanks

Strongly made of superior materials, and thoroughly proof against warping, opening, etc. Investigate the Bull Dog line of products.

HOURD & CO., LIMITED
London, Canada.



Clears Clogged and Frozen Pipe

No Need to Tear up Floors or Lawns

Display Desolvo conspicuously in your windows. A brief, clear show-card will explain its usefulness to the user. Better yet, put it in your local advertisements.

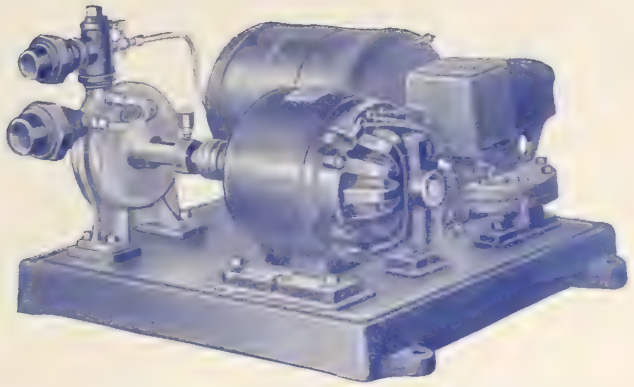
You will find a gratifying volume of sales as soon as you show users what Desolvo does for them, and let them know you sell it.

The Chamberlain Desolvo Co., Limited

109 Church Street, - TORONTO

Western Canada Representative: N. D. McPhail and Company, Standard Bank Bldg., Vancouver, B.C.
Eastern Canada Representatives: Richardson and Bureau, 55 St. Francis Xavier St., Montreal.
Ontario Representative: L. F. Mayne, 875 Trafalgar St., London, Ont.

NEW WESTCO TANKLESS
(AUTOMATIC ELECTRIC)
WATER SYSTEM



Westco Systems Are Guaranteed

You Can Sell This System

With 60 Cycle
Wagner Motor for $185.00 f.o.b. Toronto

Add $15.00 for 25 Cycle Motor

These Prices Allow for Liberal Trade Protection

All Tankless Systems Include

Solid Bronze, SKF Ball-Bearing WESTCO PUMP with ONLY ONE MOVING PART (22 foot suction lift guaranteed).

2-Pole-WESTCO-MADE Pressure Switch WAGNER Motor, DART brass faced unions on suction and discharge, LUNKENHEIMER brass Swing Check Valve and Strainer.

Order Your Demonstrator Today

We Also Make Tank Systems
and Large Size Westco Pumps

(Capacities 200 to 10,000 Gallons per hour.)

WESTCO PUMPS, LIMITED

Office and Factory :

QUEEN AND ABELL STS. - TORONTO, ONT.

WHAT DOES THE NAME PERFECTO REGISTERED STAND FOR?

THINK what it means to have a line of brass goods that you can *depend* upon—to know a name that *guarantees* the quality of every article that bears it. To see the name PerfectO on an article is all the protection a plumber needs—because every PerfectO article is definitely and absolutely *guaranteed* by the manufacturers. PerfectO stands for *Perfection*—and that, in turn, means *satisfaction*. PerfectO Brass Goods will save your time—your money—and your reputation. Buy by the name—PerfectO.

Manufactured in Canada by:-

GALT BRASS CO., Limited

GALT - CANADA

Makers of the famous VitrO No Trouble Tank.

Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XVI. PUBLICATION OFFICE, TORONTO, APRIL 15, 1922 No. 8

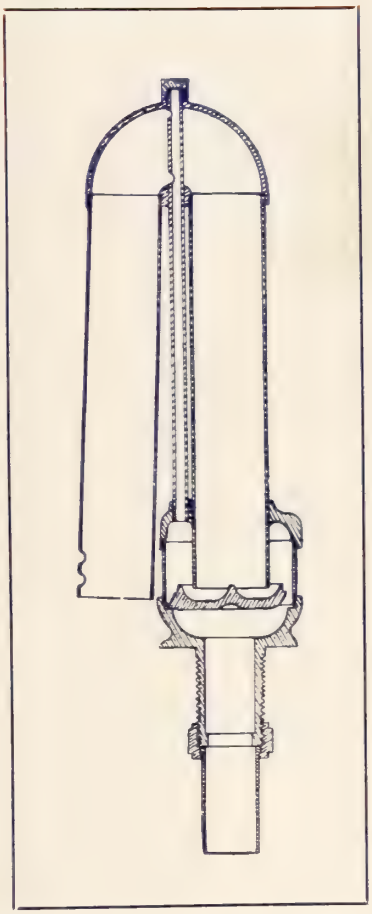
"Emco" Automatic Urinal Syphon

Sure and Noiseless

The inlet cock used with this Syphon can be regulated so tank will fill in anywhere from two to fifteen minutes and the syphon will take care of it. It is noiseless and sure in operation.

The "Emco" line is handled by progressive jobbers in every community.

"Every one in action—Gives perfect satisfaction"



Empire Brass Manufacturing Company
LIMITED

LONDON and TORONTO, CANADA

Makes Warm Friends Everywhere

Are You Selling the "Daisy"?

Have you sold some of the 60,000 Daisy Hot Water Boilers now in use in Canada?

Daisy Hot Water Boilers have made a great impression wherever they have been installed, and dealers in all sections of the country have benefited through finding them consistent sellers for the modern home.

Repeat sales are common in the neighborhood where Daisy Hot Water Boilers have been installed.

Bigger Business is waiting for you, if you take advantage of the opportunity, and become a "Daisy" booster.

Specify The "Daisy."

WARDEN KING, Limited, Montreal

BRANCH OFFICE: 136 SIMCOE ST., TORONTO

Drinking Fountains
White, Clean, Vitreous, Sanitary

The lustrous white clean surface of a Canadian Vitreous Drinking Fountain suggests the cool refreshing draught which can with safety be taken therefrom.

Canadian Vitreous China is the most thoroughly sanitary material of which a Drinking Fountain can be made. It is all clay, the same white, dense, substantial, strong, vitreous body through and through, with a beautiful hard, lustrous, live-white glaze surface, which cannot chip, crack, rust, discolor or deteriorate.

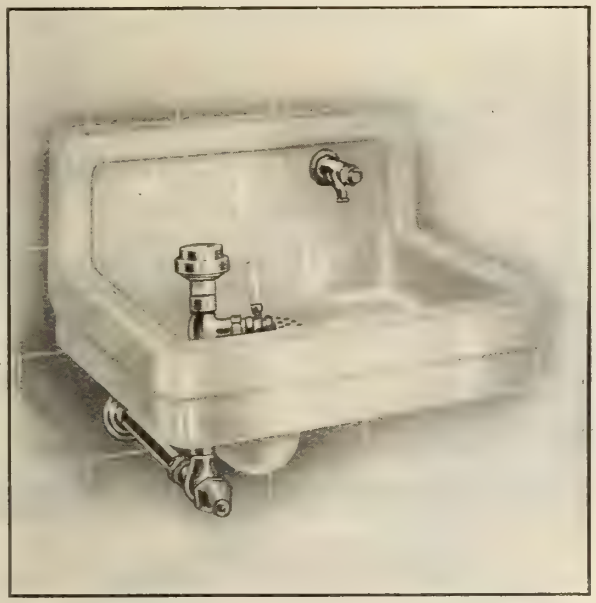


Plate 901

Dirt and germs will not readily cling to its smooth hard surface so that with a minimum of effort its original glistening whiteness will be retained after years of use.

The fittings illustrated are only suggestive. A variety of good sanitary bubblers are obtainable which will readily fit either of the patterns shown.

The moderate price at which these very desirable fixtures are furnished by us should ensure their installation in every public building.

Plate 909

CANADIAN POTTERIES
LIMITED

SAINT JOHNS
QUEBEC

Sales handled exclusively through recognized jobbing houses.

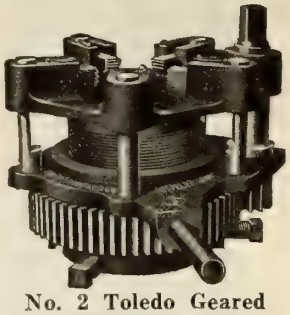
PIPE THREADING TOOLS

TOLEDO &

NEW PRICES

No. 1 Toledo	1" to 2"	$16.00
No. 1A Toledo Ratchet	1" to 2"	20.67
No. 2 Toledo	2½" to 4"	68.00
No. 2½ Toledo	2½" to 6"	150.00

MADE IN CANADA



No. 2 Toledo Geared Threading Tool
Capacity 2½" to 4"

REGISTERED J TRADE MARK

JARDINE

NEW PRICES

No. 9 Jardine	¼" to ¾"	$12.00
No. 11 Jardine	1" to 2"	16.00
No. 11-R Jardine Ratchet	1" to 2"	20.67
No. 22 Jardine	2½" to 4"	68.00

F.O.B. Hespeler, Cash with order

ONE MAN DOES THE WORK OF TWO

Leading supply houses will sell you these tools at same prices

A. B. Jardine & Co., Limited, Hespeler, Ontario

Ontario, West of Brockville:
W. H. Cunningham & Hill,
269 Richmond St. W., Toronto, Ont.

Brockville and East:
J. R. Devereaux & Co.,
New Birks Bldg., Montreal, Que.

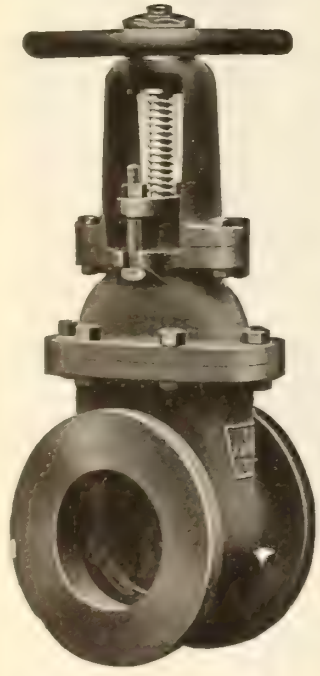
Winnipeg and West:
Stanley Brock, Ltd.,
Winnipeg, Man.

SIGN AND MAIL THIS COUPON AND GET A CATALOGUE

Name.....

Address.....

Sanitary Engineer



Kerr Valves

Give
Character
to Work

They reflect credit on the man who specifies them, the man who installs them, and they give complete satisfaction to the men who use them.

Take the Kerr Gate Valve illustrated, for instance: It is well designed; strong and sturdily made; note the compact and narrow face to face dimensions; observe the accessibility of the stuffing box; the strong, generous flanges and the properly spaced bolting.

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Catalogue No. 5 on application.

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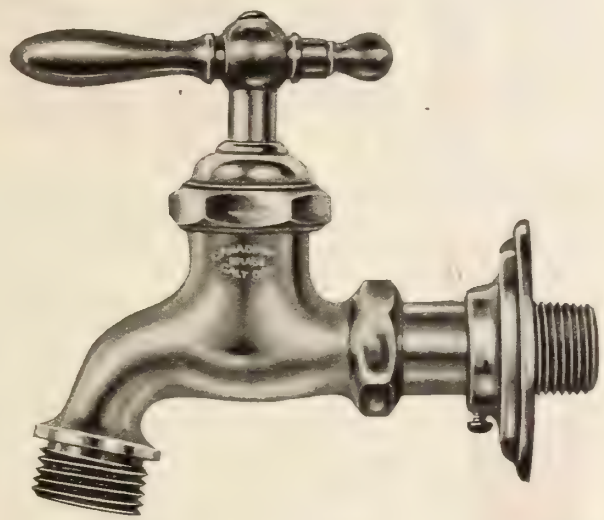
A BEAUTIFUL SKIN

DOESN'T ALWAYS COVER GOOD FRUIT



So it is with Water Taps. A first-class article must of course be highly finished with A-1 Nickel, but the important part is the mechanism.

Most Compression Work on the market to-day is of good appearance, but a large percentage does not give satisfactory service. A Tap may be defective even though it does not leak when installed. Sometimes poor metal or a thread short on the stem, but however small the defect, it will show itself after a few months' wear.

You see an illustration on this page, don't you? At first glance it looks just the same as dozens of other illustrations you have seen, doesn't it? Examine a little closer and you will find a Set Screw Flange Hose Sink Bibb of neat design and well proportioned which has a Square Threaded Stem, Strong Washer Encasements and Good Packing. Built for Service.

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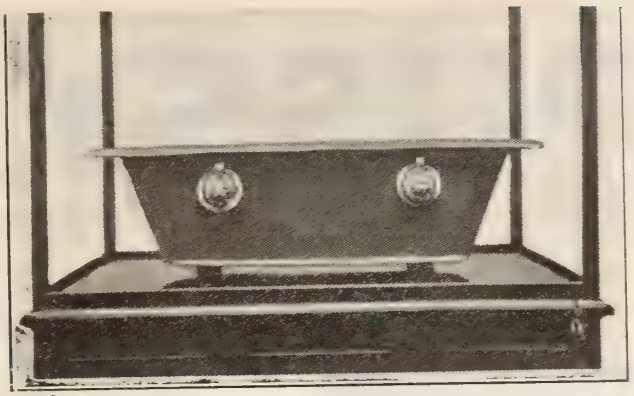
ago Pompeii



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London : Canada

SANITARY ENGINEER
PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907 PUBLISHED TWICE MONTHLY

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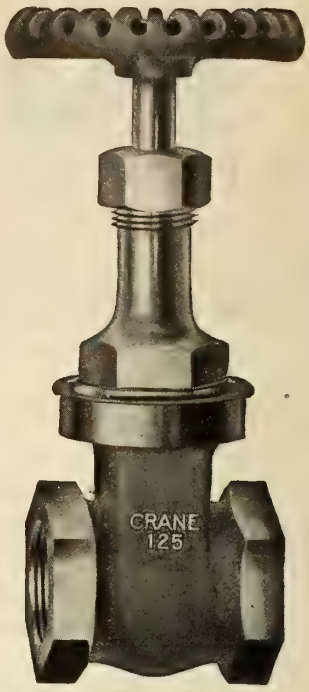

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Ontario D. S. & H. E. Convention

Delegates Think Canadian Society D. S. and H. E. Should be Executive Body Only as Present Expense out of Proportion to Results Achieved—Industrial Conferences to be Held—Secretary G. Frankland Resigned—Discuss Committee Reports

By Staff Representative of Sanitary Engineer

HAMILTON, Ont.—The 11th annual convention of the Ontario Society of Domestic Sanitary and Heating Engineers, held at the Royal Connaught Hotel, Hamilton, Ont., on Thursday and Friday, April 6 and 7, marked an important occasion in the work of this organization in the interests of the sanitary and heating engineers. The arrangements for the convention were made under the direction of G. Stewart, secretary of the Hamilton Society, whose untiring efforts were highly appreciated. On the first afternoon of the session a meeting of the Board of Directors was held, while K. B. Allison assisted by certain of the early delegates arranged a number of attractive window and shop displays in which much interest was taken by the delegates and other visitors. In the evening a meeting of the Hamilton society was held.

The convention business was entered upon Friday morning with president Thomas Maxwell in the chair. John Hart Hamilton and Ross Belyea, Toronto, were appointed sergeants at arms.

Following the reading of the president's report, as outlined elsewhere in this issue, some discussion took place on various points brought up. One of these was in connection with the annual conventions of the Canadian Society D. S. & H. E. It was felt by several members that the expense involved in attending conventions of the Canadian society, was out of proportion to the value of the convention and the suggestion was renewed that this latter body be made merely an executive one with only one or two delegates attending as representative of the various provincial organizations. Secretary Frankland explained that the per capita charge on the Ontario society members was only $1 but it was the personal expense involved in attending the Canadian society conventions which was important. He pointed out that Alberta last year wanted a dividing line between the provinces of eastern and western Canada and in view of this condition and the lack of organization among other provinces he doubted the value of the Canadian society's influence. Replying to G. Clapperton's suggestion to send one delegate as representing the Ontario society, to the Canadian society conventions, Mr. Frankland stated that an attempt had been made to put across this idea but it has failed, and suggested some other method. Mr. Clapperton did not agree with the suggestion to hold Canadian society conventions only once in two years, pointing out that if that body was to be of much use, meetings should be held at least annually, as other parts of the country have problems which may sooner or later arise in Ontario and it would be well to be acquainted with these.

Parent Society an Executive Body

On the motion of H. G. Hicks, Ottawa, seconded by G. Clapperton, it was moved that the Canadian society be constituted as an executive body for Canada with representation consisting of the provincial presidents and meet annually.

In connection with industrial conferences, local meetings to consider wage agreements, etc., Thos. Arthurs, Hamilton, supported this suggestion as a means of helping standardize wage rates among various centres. E. Cardwell's motion that an industrial conference be held soon after the convention was adopted.

NORMAN SWANSTON

Toronto, elected Presiaent of the Ontario Society D.S. & H.E. for 1922-23 at the convention in Hamilton. Mr. Swanston was last year chairman of the Legislation Committee.

Other points raised in this report were in connection with Hamilton and Niagara Falls joining the organization with sufficient members to constitute a local committee.

In connection with the action of York Township in making residential requirements in licensing plumbers, the question was raised as to whether the convention should consider the advisability of removing municipal control and allow plumbers to operate anywhere in the province. This was left for later consideration.

It was decided to have the secretary write a letter of sympathy to Mrs. Purdy in connection with the recent bereavement of her husband, Alex. S. Purdy of the firm of Purdy, Mansell, Ltd., Toronto.

Hamilton and Niagara Falls Have Required Members

Discussing the report of vice-president Thos. E. Arthurs, Hamilton, it was shown that in connection with membership plans, both Hamilton and Niagara Falls have the required ten members to form a local committee and secure representation in the Ontario Society. It was suggested that a committee be appointed to work out a scheme whereby the present membership could be divided into districts and representatives be appointed from local associations to meet as a district council. On motion of J. R. Brown, seconded by E. Cardwell, this recommendation was adopted.

Treasurer's Report

The report of treasurer H. A. Weinraub showed total receipts for the year of $1,014.28 of which $890 was in membership fees. Disbursements amounted

to $923.28 including secretary's salary, per capita dues to Canadian Society, expenses of delegates to Canadian Society convention, printing, rent, etc. Assets were valued at $691 and the assets of the Endowment Fund were shown as $253.36.

Secretary's Report

Secretary G. Frankland's report was as follows:—

"During the year we have just held our own in respect to members and we seem doomed to carry on as we are doing. Are you proud of your calling Are you members satisfied with your position? Do you feel proud in saying, 'I am doing it?' Do you realize the intimate character of your calling? Don't forget that before we can achieve anything we must first become important in our own estimation.

"In dividing the province into zones, each district comprising two or more councils and with representatives to the society there should result considerable benefit to this association. There would be seventeen divisions in all.

"I would also suggest a place in the membership for those who have helped build up the association but not now entitled to membership. This class would include such men as Messrs. Grinyer and Cunningham.

"There have been 19 new members enrolled during the year. We extend our thanks to the Hamilton members for their efforts to make this convention a success. The Canadian Trade Extension Bureau proposed some time ago has been provided for, but is not yet functioning on account of financial conditions.

"I hereby tender my resignation to take effect at your pleasure."

On motion of P. C. Mansell, Toronto, the question of the secretary's resignation was left for the consideration of the directorate.

Form Branch American Heating and Ventilating Society

Discussing the report of the Heating Committee, as outlined elsewhere, Mr. Mansell stated that steps were being taken by heating engineers of Toronto to secure a charter as a branch of the American Society of Heating and Ventilating Engineers.

Dealing with some of the difficulties outlined in this report, one delegate pointed out that as long as the engineers leave it to the boiler manufacturers to lay out their jobs for them there is going to be trouble of the kind mentioned.

Many interesting points were brought out in the report of the Committee of Apprenticeship which was adopted on motion of G. C. Abbott and W. Boxall, Toronto.

Discussing the points brought out in this report, some comment was made on the suggestion to indenture apprentices and accept them on the basis of weight and intelligence, not alone by weight. G. Clapperton thought the educational system should be such as that a boy when he finishes public school should know what he is fitted for. P. C. Mansell thought the education of a boy was beyond the jurisdiction of the Society and thought that the probationary period of three months was enough to determine whether a boy would be of any use in this industry and this limited term interfered little with his life.

Mr. Clapperton suggested that the schools of Ontario should use discernment in dealing with boys and make recommendations as to their fitness for certain occupations. In answer, another delegate thought the schoolmasters as a whole did not know how to shake a furnace or whether to open the damper or draft on a furnace, so in view of their limited knowledge of this industry they could hardly make intelligent recommendations concerning boys' fitness for this occupation.

On motion of H. Hicks, Ottawa, seconded by H. Weinraub, Toronto, it was decided to advise the educational authorities of the stand of the association in the matter.

Continuing the discussion, H. M. Rushbey, Toronto, disagreed with the tendency to shelve the question and leave its solution to posterity, pointing out that the boy who comes into the shop for a job to-day is the one being dealt with.

"I contend that when we take on a boy he should enter into partnership with us in the work of making a plumber of him."

OFFICERS OF ONTARIO SOCIETY D. S. & H. E. FOR 1922-23

President — Norman Swanston, Toronto.

Vice-President—C. G. Stewart, Hamilton.

Treasurer—H. Weinraub, Toronto.

Auditors—F. M. Gentle, Toronto; F. Smith, Guelph; Thos. Arthurs, Hamilton.

COMMITTEE CHAIRMEN

Sanitary—J. Wright, Toronto.

Heating—W. F. Clifton, Toronto.

Arbitration—E. Cardwell, Welland.

Legislation—P. Mansell, Toronto.

Apprenticeship—G. Baker, Toronto.

Education—R. Belyea, Toronto.

Trustees—Wm. Mansell, Toronto; H. Mahoney, Guelph, (G. Frankland.)

H. WEINRAUB

Toronto, Treasurer for 1921 and re-elected for 1922 to that position by the Ontario Society, D. S. & H. E.

Probationary Period

The second recommendation of the report that a probationary period of one to three months be established was adopted though there were some who suggested that this should not be shorter than six months.

It was agreed that the larger employers should not be expected to be the training ground of apprentices for the smaller operators to exploit. Also that apprentices should not be controlled altogether by employers but partly by the local association in view of the fact that it is the actions of such associations that make the way possible for the boy. It was agreed that steps should be taken to make the industry so attractive that the proper class of boy will be secured. It was thought that it should be impressed on parents' minds that they should make some sacrifice for a boy serving apprenticeship in this industry.

A recommendation of the report was that apprentices would receive $5 for the first year, $7 for the second and $10 for the third year. Small operators would therefore be able to carry one boy, intermediate operators two boys, the employer to provide the boy's tools and the boy to be examined by a special examining board. The indenture method of apprenticeship was new in this country, but, Mr. Baker thought this country should look to the Old Country for some helpful leads in respect to such matters.

Following the reading of the Heating Committee's report, H. Hicks, Ottawa, suggested that copies of this report be sent to other associations. T. J. Minnes, Brantford, added that this should also be sent to architects and an attempt should be made to bring governmental action on the recommendations.

Educational Committee Report

Making a verbal report, G. C. Stewart, chairman of the education committee, pointed out that education was the keynote of the successful development of the association and was the secret of increased membership. "We have had trade organizations and their life has been determined largely on the basis of the educational facilities they were able to offer their members. We were disappointed that the program of the Trade Extension Bureau was limited. The personnel of our business seems to be changing rapidly and the experience that our older men have had is not being handed down, and as a result the trade is suffering. Our Society has much val-

uable information in hand and this should be passed on to members of other societies. Chalk talks are a big help in disseminating information and such features have been much appreciated in our Hamilton Society."

At this stage enquiry was made as to whether or not certain manufacturers' and wholesalers' representatives in the lobby would be admitted to the meeting. Some objection was taken and secretary Frankland pointed out that if the representatives were principals they would be welcome, but that travelers and junior representatives would be of little help in connection with the business of the meeting.

The report of the committee on legislation and sanitation, as outlined elsewhere was read by Norman Swanston, who explained that while it dealt chiefly with conditions in Toronto, yet these were representative of other parts of the country as well. At the conclusion of lengthy and interesting report, G. Clapperton suggested that it be brought before other societies and given as much prominence in trade and other publications as possible. H. Mahoney thought the report emphasized the necessity for enforcing the suggested by-laws in Ontario and asked that every delegate get in touch with his member of the legislature for the purpose of supporting it.

York Township Case

At this point a considerable discussion was entered upon in regard to that clause in the president's report which dealt with the action of York Township in enforcing a residence ruling in connection with licensing plumbers to work in that township. H. W. Rushbey, president of the York Township Master Plumbers' Association, asked for an expression of opinion on the law as it exists. Another plumber of the township stated that if no redress was forthcoming from the convention the matter would be taken into the courts in order that satisfactory arrangement might be made whereby plumbers of the township could do business in Toronto city without present restrictions. It was explained that the Police Department in Toronto has the power to give licenses and that the association could do little. The troublesome regulation had been made necessary when some U. S. firms came into Toronto and took business without establishing a place of business. A. Paddon, Windsor and others thought the prolonged discussion had little to do with other parts of the province, but officials of the society pointed out that the trouble was likely to occur elsewhere and should be thoroughly investigated. H. Mahoney thought the best solution of such difficulties was to get the lieutenant-governor's signature on the suggested plumbing by-laws which are now pigeon holed at the Parliament buildings.

The matter was finally settled on Mr. Mahoney's motion that the whole matter be referred to J. Wright, Toronto, chairman of the legislature committee. with a recommendation for an early enactment of the plumbing regulations awaiting approval.

For the election of officers a nominating committee was appointed consisting of Messrs T. J. Minnes, H. Mahoney and G. Clapperton. Names of Officers elected appear elsewhere.

On motion of H. Mahoney, Guelph, Messrs. Cunningham and Grinyer were made honorary members of the association.

Following his election to office, the new president, Norman Swanston made a brief address asking for the co operation of all members throughout the ensuing year. H. Mahoney moved a vote of thanks to the retiring president, Thos. Maxwell, also a vote of thanks to the trade papers for their co operation. Speaking to this latter motion, president Swanston agreed that the trade papers were deserving of much appreciation for their efforts in sending information of convention doings broadcast. Appreciation was also expressed to the Hamilton society for securing the convention hall and other arrangements which they had made.

Says Building Prospects Good For Years

112 Houses for Every Hundred Families in 1913 But Only 92 Houses to Hundred Families To-day— Take Ten Years to Catch up With Correct Proportion

AN ENJOYABLE social hour was spent at noon day luncheon on Friday at the convention, when an address was heard from Russel Kelly of the Hamilton Advertisers' Agency. Mr. Kelly was introduced to the gathering by Mr. Rogers of the Hamilton branch Standard Sanitary Mfg. Co. A somewhat intimate connection with the trade was established by Mr. Kelly in referring to his early relations with certain members of the craft including J. McKinley of Ottawa with whom he served as a foot lathe operator in a brass foundry.

C. G. STEWART

Secretary of the Hamilton Society of Domestic Sanitary and Heating Engineers, who was elected vice president of the Ontario Society, D. S. & H. E., at the convention in Hamilton.

He expressed the belief that Canada stands on the threshold of great development and pointed out that favorable advertising would be an important factor in developing better conditions.

"Canada has received much favorable advertising since 1914," continued Mr. Kelly, "in respect to our soldiers, production of munitions and our financing. This has resulted in turning the eyes of the world toward Canada. We are going to have an opportunity to participate in this wonderful development in the next few years, but there are some serious problems which concern us. Canada will only have this development as we realize our individual responsibility and strive to achieve national unity.

Refers to Articles in Macleans

"Any of you who have been reading the articles of Agnes C. Laut in MacLean's Magazine will be much interested in the points brought out therein. There seem to be many controversies as to problems which are hard to solve. What we want is to get a proper viewpoint on the whole question. An important thing we must do is to Canadianize the foreigners living in our midst. We need more people and we want them properly located. I would advocate an industrial department of the provincial government to make a survey of towns and cities and try to get industries for the smaller centres. You bring a market to the farmer and you will build up the smaller cities.

Briefly referring to the building situation, Mr. Kelly pointed out that in 1913 there were 112 houses in Canada for every 100 families and to-day there are only 92 houses for every 100 families. "It will take ten years to catch up, taking into consideration the natural increase in population, so the building program looks good for some years."

WEYBURN PLUMBER LANDS BIG CONTRACT IN REGINA

J. C. Stewart was recently in Regina in connection with the heating plant contract he secured there in competition with the plumbers of the province. The contract was awarded by the Saskatchewan Co-operative Elevator Co. for installing steam heating plants in twenty-one of the company's houses in Regina, which have hitherto been heated by hot air furnaces. The total cost of installing the steam heating systems will be around $16,000.

Provincial Conferences are Helpful

With Prospects for Increased Construction Activity it is Suggested That Industrial Conferences be Continued—Niagara Falls Forms Local Committee and Hamilton is Expected to Follow.

Report of retiring President THOS. MAXWELL, Toronto, to 11th Annual Convention Ontario Society D. S. & H. E.

I HAVE the honor of presenting my report as the president for 1921 of our Ontario Society of Domestic Sanitary and Heating Engineers and trust my stewardship while in office merited your wisdom one year ago, in appointing me to the responsibilities of your president.

The directors in convening from time to time throughout the year were able to give to the business of the society, the required attention warranted by its importance.

Shortly after our last annual meeting we met in Hamilton to consider the industrial situation in our business through the province and we had representatives present from Brantford, Guelph, St. Catharines, Welland, Toronto and Hamilton, and I am sure that the resultant effects were at least beneficial, and would have been more so if representation had been more general and the expected revival in the building trades had materialized during 1921. These conferences should continue being held, and I would recommend that the incoming directors arrange for same again this year because we are all looking forward to increased construction activities, and knowledge of the nearby local industrial situation is of some value, when you are called upon to take care of your own.

Delegates to Quebec

In June 1921 at the Canadian Society Convention our worthy past-president, Thomas J. Minnes who was provincial vice-president for Ontario of the Canadian society, with treasurer H. A. Weinraub and myself officially represented the Ontario society, at Quebec and were accompanied by a good delegation from Toronto, and other points in the province. The craft in Quebec city certainly did make the visitors welcome and their sojourn a pleasant one, that will not soon be forgotten. A provincial society for Quebec was inaugurated, Thomas J. Minnes, who was provincial president of the Canadian Society and yours truly as provincial vice-president for Ontario. Consideration by the Ontario society at this time as to the advisability of convening the Canadian society bi-annually until greater organization activities are prevalent throughout the provinces, might well be gone into, and have resolution drafted to the president of the Canadian society at Montreal accordingly.

The outstanding factor in the Society's affairs during 1921, was the outcome of the visit paid by Secretary Frankland to Niagara Falls in November and by your directors again in February, resulting in the joining of sufficient members at that point to form a local committee, for whom I bespeak a most hearty welcome to our midst and I trust a successful and profitable organization for our craft in the city of Niagara Falls.

The action of the Hamilton craft along similar lines has long been anticipated and I trust that same may be the final outcome of our meeting at this time in their midst, your directors having conferred with the officers of the Hamilton craft along these lines on several occasions.

THOS. MAXWELL

Toronto, Retiring President of the Ontario Society, D. S. & H. E., whose report is given herewith.

Meeting in York

The directors attended a meeting of the operators in the Township of York in January and outlined the objects of the Ontario society and while no results have shown as yet, the outlook for good results is most promising. This may seem strange, when you consider that this municipality is one that borders on another and has created a most contentious condition in respect to the licensing of master plumbers by creating a residential regulation by the Municipal Act of 1917. This matter will be fully dealt with in the report of our most worthy chairman of sanitation. Mr. John Wright of Toronto, and merits the undivided attention of every member of the society, as to whether the legislation already enacted in respect to the licensing of plumbers for the province of Ontario is satisfactory to the different muncipalities or whether we should consider the advisability of removing municipal control and making it possible to practise our calling anywhere in the province.

This also brings to our notice the ultimate benefits that will accrue to the entire province by the early enactment of the proposed provincial plumbing regulations from an improved standard of sanitary equipment and economically as well by a uniformity of style of installation permitted.

Negotiations were carried on with the London craft through the co-operation of Mr. Russell Wright of Wright & Teale of London to the point where your directors were about to attend a meeting of the craft in London, but owing to the lack of support by the London trade, the directors' visit to London was cancelled. The thanks of the society is extended to Mr. R. Wright for his efforts and I trust he will be numbered among our members at an early date.

Our financial condition is one that should warrant our attention from the angle of organization. If our society is to be both active and growing, we cannot expect directors to expend their money and also give their time in carrying out any extensive plan of organizing. We all have visions of what might be accomplished, but are helpless owing to the want of funds.

In closing I wish to make mention of one who was a pillar of our craft, a staunch supporter of our society, who was to those that had the privilege of knowing him a friend in every sense of the word, and one whose absence from our midst has left a void that remains vacant and always will, in the person of our esteemed craftsman the late Alex. S. Purdy of Purdy-Mansell Limited, Toronto.

I thank you gentlemen for the honor you have bestowed upon me and with best wishes for the continued success and prosperity of our society and all its members,

(Signed),
Thomas M. Maxwell,
President, 1921.

DOMINION ALLOY STEEL SECURES CONCESSIONS

It is announced that the Dominion Alloy Steel Corporation is securing favorable concessions from the Town of Sarnia. The property owned by the company will be annexed to the town, which will also give a favorable fixed assessment, extend the sewers and water into the new plant, and guarantee ample fire protection.

Suggest Divide Members Into Districts

Encouragement of Better Social and Business Relations Among Members of the Association is Object of Recommendations—Want Local Associations to Join Provincial Body

Report of Vice-President THOS. E. ARTHURS, Hamilton, presented to 11th Annual Convention Ontario Society D. S. & H. E.

AS your Vice-President for the term just closing, I have contributed comparatively little to the activities of the Association during the past year.

Under present conditions it must be admitted that the holding together of the present membership is a showing worthy of your consideration as the year just past has been very trying.

I have assisted your President and Secretary to the best of my ability when requested.

In the past year I have given considerable study to the increasing of our membership and would offer the following suggestions for your criticism.

THOS. F. ARTHUR

Hamilton, Ont. former vice-president of the Ontario Society, D. S. & H. E., who made a number of suggestions for improving membership.

At the present time there are several large centres having local associations which are not affiliated with the Ontario Society but who, at the same time, have parties holding membership in the Ontario Society, associated with them. Every effort should be made to persuade these local associations to join us as a body.

It must also, at this time, be recognized that we have, under our present way of operating, very little to offer our present membership for those contemplating joining us.

Under our present plan of meeting in convention once a year, it is impossible for the membership of this Society to become acquainted with one another, both socially and as to business relations. I would suggest at this present session that a committee be appointed with the object in view of trying to work out some scheme whereby the present membership could be divided into districts and a representative appointed from each local association in the said district to attend meetings at least once every two months at a stated place, preferably once in each town or city of said district. This would, in other words, be a District Council whose duty it would be to take up all questions as to the betterment of the Association and trade as a whole.

This body could forward recommendations to your Board of Directors for immediate action.

I feel confident that a great deal of good could be accomplished for the trade in the above method. Annual meetings and correspondence are very slow—by the above method, I believe it would be possible to secure more direct action.

In closing, I wish to express my appreciation of the efforts and work of Mr. C. G. Stewart of our Educational Committee, who has worked very hard in the effort to make this present Convention and banquet a success.

(Signed) THOS. E. ARTHURS

Don't Want Tinsmiths Installing Plumbing

Finest Tinsmithing Job Even Seen Was a Plumbing Job—Plumbers Should Take Vigorous Action to Get Suggested Provincial Plumbing By-laws Adopted

Inspectors' Association

Address by G. BLOOMFIELD representing Ontario Plumbing and Drainage

AN INTERESTING and new feature was the address by G. Bloomfield, Brantford, representing the Ontario Plumbing and Drainage Inspectors' Association. Mr. Bloomfield was introduced by T. J. Minnes. Mr. Bloomfield's address was as follows:—

"I want to ask you to pass a resolution to be forwarded to the Minister of Labor in Ontario to have enforced the legislation or part of the legislation concerning plumbing as suggested by the Hearst Government and which the Farmer government has refused to pass. The reason the farmer has not passed that legislation is that 80 per cent of the plumbers who go to the rural districts have told the farmers, 'you don't need that venting.' You have educated the farmer along that line and he has been falsely educated. In Toronto you have stood for a college professor making the statement 'here's a trap, a plumbers' graft.'

"We find tinsmiths installing plumbing. The finest tinsmithng job I ever saw was a plumbing job. If you will educate the farmer by going to the women's institutes and other places and show them the need for venting and for sanitary installations they will see that the proper legislation is put on the books and have tinsmiths and steamfitters kept out of the plumbing business.

"We have all the mail order houses trying to make a success of the plumbing business but today we have them pretty well on the run and if we can conduct education along the proper lines it will be an easy matter to bring about better conditions. One way to help dealings with our customers is to bury 'overhead' expenses in our business. If you can invent some other word it would be well. People are willing to pay for all legitimate expenses but they don't like to see an entry on their bill entitled 'overhead.'"

On motion of H. Mahoney, Guelph, and W. J. Clifton, Toronto, the report was adopted and an endeavor will be made to have the suggested Ontario plumbing by laws brought into force.

G. BLOOMFIELD

Sanitary Inspector, Brantford, Ont., who represented the Ontario Plumbing and Drainage Inspectors' Ass'n. at the Ontario Society, D. S. and H. E. convention

Advocates Apprentices be Indentured

Ravages of War Have Greatly Thinned Out Ranks of Prospective Employees in Plumbing and Heating Industry—Probationary Period to Protect Both Employer and Employee—Apprentice Should be Partly Controlled by Local Employer's Associations

Report of G. R. BAKER, Toronto, Chairman Apprenticeship Committee, presented to 11th Annual Convention Ontario Society D. S. & H. E.

AT THE last Ontario Convention, I had the honor of being eected Chairman of the Apprenticeship Committee, for the Province of Ontario.

At that convention, I fully realized the importance of such an office, and I feel positive that the gentlemen who elected me had some knowledge of a game vulgarly known as passing the "buck". However gentlemen I want to briefly outline the situation, as I found it in the Province as a whole. During the war the apprentices, who were in the making of future mechanics, were brought face to face with a problem, that brought out the real British ideals, of choosing between getting a living or allowing others to live, and chose the more noble one for humanity's sake.

The dropping of their tuition at the various stages for that great cause, took from us and rightly so, under such conditions, our future mechanics. These gentlemen went away with a knowledge of our Industry, which can only be gained by serving a certain period of time, which our craft demands. After the ravages of the war, taking its toll in various ways, such as amputation cases, and nervous wrecks, it left very few A1 men. And these A1 men had grown from youth to full manhood, and could not be expected to take up the studies of our Industry successfully, and finally drifted into other walks of life, and have become a burden more or less. These facts coupled with the uncertain state of the world's commerce after the war, placed us with equal uncertainty in our own particular Industry, inasmuch that many of our large employers of apprentices, who have in the past taken the responsibility of training boys, have through the rigid retrenchment policy, which was forced upon them, been compelled very much against their wishes, to cut down the number of apprentices.

An Obstacle

Owing to the abnormal conditions as described, my hands have been somewhat tied, and all that could be done under these conditions was to mark time. The present period of optimism which is presenting itself to our Country, and the rest of the world, through the action of the best brains of the world, gathered at the Peace Conference, whereby capital previously used for destroying life, is to be diverted for the purpose of uplifting all nations, and commerce in general. This leads us on to new thoughts, and new ideas, and at this point may I be so pertinent to say that with 15 years, of my own observation of our apprenticeship system

G. R. BAKER

Toronto Chairman Apprenticeship Committee of the Ontario Society D.S. & H.E. for 1921 and re-elected for 1922.

leads me to believe, that a similar state of affairs would have prevailed, even if the circumstances which I have referred to in this report had not taken place, as our apprenticeship system as we knew it, could not be spoken of seriously, therefore as your chairman of the apprenticeship board, I make the following suggestions to you, feeling that you will digest it, and act accordingly as this matter is the most serious of all matters, pertaining to our Industry.

(1)

That a plumber or steamfitter apprentice shall be properly indentured, and that when an applicant for such apprenticeship should present himself, he should not be selected by an employer according to his weight, but should be accepted by weight, and intelligence combined, as these two features are essential.

(2)

That a probationary period of one to three months, should be given for the purpose of both the employer and employee to see if such applicant is satisfactory.

(3)

That the larger employers of our Industry, should not be expected to be the training ground for the smaller operator to exploit.

(4)

An apprentice should not be controlled altogether by his employer, but by our Local Employer's Associations, as it is the actions of such Associations, that should make the way possible for the boy.

(5)

We should, and can make our industry so attractive, that the proper class of boy will come, going so far as approaching his parents, and impressing on their minds, that they as parents must make some sacrifice for the boy's future. Also advertising through the press that the Local Employer's Associations are taking an interest in the boy, by giving scholarships, such is being done in the City of Toronto, by the Toronto Society, and the Local Journeymen's Union combined.

Wages

(6)

The boy for his 1st year will receive ($5.00) per week, ($7.00) per week for 2nd and ($10.00) for the 3rd. If this is done, it will enable the smallest of operators, to take at least one boy. It will also enable the intermediate operator to take two boys, and not farm one boy continually from the plumber to steamfitter, as practised today, as this breeds discontent. Keeping in mind, that in dealing with apprentices you are not dealing with men of matured judgment, and the less discontent you place in the boy's way, the better for all concerned. Also that steamfitters' laborers can always be obtained from the general labor market for heavy work. At the end of the third year, the boy should appear before a Board of Examiners, to qualify for his tools, which should be provided by his employer. The board should consist of Representatives from the Employer's Association, and the Local Union, as it is from the journeymen to a great extent that the boy should get his tuition, and it is necessary for employers of labor, to impress upon their journeymen that it is their duty to impart some knowledge, for the boy's benefit, and we must interest ourselves in the boy's future.

Gentlemen, by using the indentured method of apprenticeship, I realize that I have gone away from the old style of our supposed apprenticeship system, but we must look to the older countries for our object lesson, and such a lesson is outlined in this report. In Toronto alone according to reliable figures, we need 80 apprentices entering our industry annually. At the present time no such number to my knowledge is learning the business. We cannot look to immigration for any material help, as the older countries are going to hold their

Continued on page 20

Fraternal Spirit at Annual Banquet

Sanitary and Heating Engineers, Representatives of Wholesalers and Manufacturers and Guests, Gather at Banquet Festivities—Excellent Entertainment Provided—Interesting Addresses on Development of Waterworks Systems, Baths, etc.

A BUOYANT spirit of sociability was everywhere in evidence along the various tables at the annual banquet at the Royal Connaught Hotel, Hamilton. Under the direction of officials of the Hamilton society splendid arrangements were made for dinner and entertainment and a representative crowd was on hand for the festivities.

After a splendid meal had been enjoyed, T. J. Minnes, who acted as chairman, introduced Fred Goodram, president of the Hamilton society who briefly welcomed the delegates to Hamilton, pointing out that he and other Hamilton delegates had thoroughly enjoyed themselves in Toronto last year and he was glad of the opportunity of reciprocating.

On behalf of the Toronto society, G. R. Baker replied, after which he provided some very entertaining features in the form of conversations of certain typical London characters, and a recitation entitled, "Democracy as seen by a London 'cop' during the war."

Norman Swanson, newly elected president, thanked the delegates for the honor conferred upon him, pointing out that he was proud of his position in the society. He thought such get-together meetings should be held not less than quarterly throughout the year. He repeated his earlier expressions of thanks to the trade papers for their courtesy in attending and reporting the convention. He also extended thanks to the manufacturers and wholesalers for their efforts at co-operation.

One of the speakers of the evening was Wm. Drynan, president of the local Chamber of Commerce, whom H. A. Rogers of the Standard Sanitary Mfg., Co., introduced as the Mark Twain of Hamilton.

What "Plumber" Means

In introducing his remarks, Mr. Drynan said he had looked up the derivation of the word "plumber" and found it meant "worker in lead" and therefore he realized that the workers in this industry should be termed domestic engineers. He spoke of the value of organization, pointing to the splendid business morale existing in Hamilton because of opportunities for business men to get together.

"Every man owes it to himself to take an interest in civic affairs. Everyone who does is an asset and if he does not he is a liability," said Mr. Drynan, who continued by speaking of the progress made in regard to baths. Making reference to the campaign now being conducted under the title, "A bath a day keeps you fit every way," Mr. Drynan became slightly twisted, referring to it as "A bath a day keeps the fits away."

The bathing habits of the various nations were said to vary considerably, the Japanese bathing four or five times a day in baths which had a charcoal fire at one end to keep the water warm. The Japs took baths . water 100-120 degrees

T. J. MINNES

Brantford, Ont., ex-president of the Ontario Society, D.S. & H.E., who presented a report as vice-president of the Canadian Society and ably presided at the annual banquet.

and thought nothing of bathing openly. There were said to be 1,200 public baths in the city of Tokio and the idea is said to be spreading rapidly in Japan and China.

Plumbing in the Orient

G. Stewart, newly elected vice-president of the Ontario Society, introduced S. P. Westaway who has just recently returned from fourteen years spent in the Orient. Mr. Westaway dealt in an interesting manner with the progress of water supply in oriental countries, pointing out that the world is to day getting nearer to China and that a study of each other's methods is of value to all. He outlined an ingenious plan which was evolved to provide water to a city of 1,500,000 inhabitants lying 3,000 miles inland in China. This city was surrounded with an irrigation system of water supply. This supply was dammed up and a sluice made as the basis. A water wheel 40 ft. in diameter was constructed and placed just outside the city wall which was 30 ft. high. To each paddle was attached a bucket which emptied the water into a reservoir high enough to give the necessary fall. The water was carried through the city level with the sewers by means of bamboo hollow rods. The final distribution of water to consumers was made from frequent reservoirs by means of coolies.

"We must look to the Chinaman as a future competitor," said Mr. Westaway, "but he is a worthy one and we should not discourage his education."

A number of splendid vocal solos, recitations, comedy songs and magical tricks provided plenty of entertainment, interspersing the addresses, and during the dinner splendid music was provided by an orchestra.

INVESTIGATE HAMILTON SEWAGE DISPOSAL

Hamilton, Ont.:—A start was made on the city's sewage system and its problems, with the arrival of H. P. Eddy, consulting sanitary engineer of Boston. Mr. Eddy will go into the whole sewage question with the local engineers studying the present sewer system and visiting the plants in operation. Hamilton's sewage disposal problem is at present one of the biggest ones in the country, and the magnitude of the work involved makes it comparable to the systems of Detroit, Buffalo, Cleveland and other U. S. cities. So far two U. S. consulting engineers have been communicated with, viz., Mr. Eddy and Langton Pierce, chief sanitary engineer of the Chicago drainage commission. Whether the city shall go across the border to engage a consulting engineer is a question awaiting decision, but Mayor Coppley states that although every effort should be made to secure a Canadian for the position, the city should not hesitate to go to the U. S. if the procuring of the best available service is at issue. There seemed to be little doubt that Mr. Eddy would be the expert engaged to settle the problem judging by the way in which his preliminary report was received, the outstanding feature of which was that the attitude of the provincial Board of Health would have a great deal to do with the expenditure required on account of it controlling the waters of the bay. Mr. Eddy thought much money could be saved if the oxidizing facilities of the bay could be used.

The St. Thomas Packing Co., St. Thomas, Ont., W. H. Moody, manager is preparing plans for $50,000 cold storage plant to be erected at Welland, Ont., and wants prices on all equipment.

Need Legislation Regarding Heating

Chimneys a Source of Much Trouble in Case of Heating Plants—Undersize Boilers Frequently Installed—Why Compel Plumber to Have License and Let Anyone Install Heating Plants?—Asks Qualifications for Those Installing Heating Plants

Report of W. J. CLIFTON, Chairman Heating Committee, as presented to the 11th Annual Convention Ontario Society D. S. & H. E.

"I HEREWITH SUBMIT a few suggestions for your consideration which I believe will benefit the public at large as well as our craft.

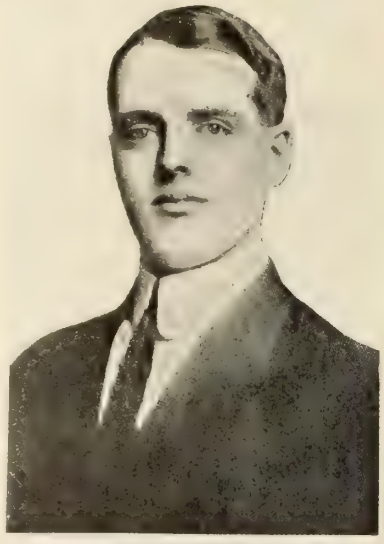
"We have by-laws of different kinds both Municipal and Provincial in regards to sanitation, etc., in connection with plumbing in all its branches, which we all appreciate and uphold, and these are being amended from time to time. But what about the heating and ventilating of our buildings in all its branches? What has been done in the way of legislation along this line?

"First of all, let me refer to the chimney. Surely it will not be necessary for me to go into details to members of our Association, to prove that chimneys cause trouble to heating plants and as a result impair the health of the people. I have in mind a house that has a smoke pipe from the hot water boiler, a three inch vent from the w.c. and a kitchen coal-range pipe all going into one nine inch flue, and the occupant of the house expects service from the boiler when same is not forthcoming. Of course, he blames the heating contractor. Another one carries a smoke pipe from the boiler and two fire places in a 9 inch flue, on a brick veneer house which means one single course of brick. Both of the above cases finally caused injurious conditions to the health of the occupants as well as waste of fuel.

No Law to Prevent

"My next point will be the size of the boiler, radiators or furnace, etc., that is used to heat the buildings. Earlier in my business career I had an experience, when I figured a No. 5 boiler was required to heat a house. The builder plainly stated he only had so much money allowed for heating. As a result I cut the boiler to a No. 3½ and also cut down radiation. The house was finally sold and the house cannot possibly be heated on a cold day. You will all say I am to blame. True, but I had to have an experience of this kind in order to learn. Naturally a man that intends to stay in business will never do that more than once. This thing is being done all over the country to-day and no law prevents it.

"Why compel a plumber to have a license and pass an examination and allow any Tom, Dick or Harry to install our heating plants? It is true chimneys cause trouble in heating buildings as well as the equipment being too small but it is also true that many a building is improperly heated on account of the ignorance and carelessness of the party installing same. It also can be pointed out that buildings have been wrecked by explosions of hot water boilers where proper provisions have not been made for expansion. The writer has in mind a public building heated with two hot water boilers and the pipe from the expansion tank taken off on the wrong side of the valves. The owners were notified of this and also the possible loss of life and property, yet nothing is done, as the owner says it has been that way for fifteen years, and we are still alright, and mind you gentlemen, there is no law to compel those people to make that right.



W. J. CLIFTON

Toronto Chairman Heating Committee of the Ontario Society D.S. & H.E. for 1921 and re-elected for 1922.

Raising Chimney Brings Improvement

I contend this—first, that if the authorities can say that my walls must be a certain size, the joists, etc., a certain thickness, they also can say that the chimney must be built the proper size, and height above the roof. I have just extended a chimney two feet higher and as a result the tenants have been warm for the first time in seven years.

"Second—that the equipment should be of sufficient size to heat the building. The argument that one man may not want his house as warm as the other fellow will not hold water, as this point could be raised about the size of the vent through the roof as well as the size of a wall and joists, etc. Put the system in the proper size and then let the occupants suit themselves, but do not tie his hands so he cannot do it in order to satisfy a jerry builder.

"Third—that all persons installing heating plants should qualify for same. One case in point where a man calling himself a steamfitter desired to release some pressure on a boiler that was carrying 85 lbs. He opened the everlasting blow-off valve quickly into a galvanized iron blow-off tank with a ½ inch vent pipe through the roof. It will not be necessary to explain the results. This coupled with the other illustration referred to compels me to believe that persons should qualify.

Fourth—that an inspection should be made to prevent accidents like those referred to.

Plumbers to Blame

"I am also compelled to believe that the plumbers are largely to blame for the existing conditions. Some times I try to excuse them, as the oakum or solder they use must affect their reasoning powers, as most of them are unreasonable. To illustrate, if I as a heating contractor attempted to run a vent pipe, they would jump into their car for the nearest police station to summon me before a court for infringing on their trade and breaking the plumbing by-laws, etc., and yet on the way down to the station they would connect up a few radiators or do anything else in the heating line. Steamfitters are in the minority and can not do much. If the plumbers would assist the heating men as aggressively in securing by-laws along the above line, as they do for plumbing laws, no doubt we would get results. It is a case of might is right. They will not vote to stop themselves from doing the heating man's work, anymore than you can expect a hardware man to go to the government and plead with them to pass a by-law whereby a hardware man would be fined for doing plumbing work.

"Finally, gentlemen, allow me to summarize the above into the following four points:

1st. Have chimneys the proper size and height.

2nd. Have all heating systems of sufficient size to heat the buildings.

3rd. Have all persons installing heating systems qualified.

4th. Have all heating installations inspected.

"I trust that this convention will go on record as favoring some of these suggestions and give your undivided support to who ever is detailed to carry them out."

PLUMBER BUYS KITCHENER LANDMARK

Kitchener.—Another of Kitchener's old landmarks has passed into new hands. It is the Heller property on King street, and is one of the historic business blocks of Waterloo County. The purchase was made by John Shiry, a local plumber. It is expected the place, the appearance of which still harks back about 100 years, will be completely remodeled into modern store fronts.

Want Uniform Plumbing Regulations

Great Need for Enforcement of Suggested Ontario Regulations—Adequate Plumbing is of Chief Value to Householders—Municipal Inspectors and Supply Houses Should Conduct Campaigns to Popularize Fixtures—Plumbing Regulations and Police Power.

Joint Report of JOHN WRIGHT, Chairman Sanitation Committee and NORMAN SWANSTON, Chairman Legislation Committee, before 11th Annual Convention Ontario Society D. S. & H. E.

I SUBMIT to you the third edition of your Toronto Sanitary Legislature report for the past year 1921 and up to date, which will be reports on the Department of Public Health, Plumbing and Drainage Division, the Hygienic Division and Convention of the Association of plumbers in connection with the Township of York By-laws and an explanation of Re-plumbing By-laws for the Province of Ontario. Interpreting basis on the compiling of the Proposed Plumbing Regulations passed by the Provincial Board of Health, May 6th, 1918.

Department of Public Health 1921 — Synopsis of Work Done — Toronto Plumbing and Drainage Division

Applications For Inspection:	
1919	16,425
1920	16,959
1921	17,520
Inspections Made:	
Plumbing	13,696
Drainage	7,443
Smoke Tests	2,356
Totals	23,495
Correspondence:	
Letters	6,625
Notices	6,018

Permits Issued

Plumbing and Drainage:	
Permits	2,958
Buildings	4,493
Plumbing Only:	
Permits	1,425
Buildings	1,449
Drainage Only:	
Permits	433
Buildings	420
Totals:	
Permits	4,816
Buildings	6,371
Amended Plans Approved & Filed	2,877
Requested Plans	5,338
Master Plumbers Registered	430
Master Plumbers Cert. Issued	377
Master Plumbers Candidates Ex.	79
Journeymen Plumbers Reg.	336
Journeymen Plumber Cert. Issued	307
Journeymen Plumbers Cand. Ex.	53
Board Meetings	34
Summons Issued	75

Permits 17.5 more than in 1920.

Buildings 2.40 % more than in 1920.

Inspection Notices Received 3.33 % more than in 1920.

Inspections made, 2.75% more than in 1920.

Correspondence, etc., 15.0% less than in 1920.

Amended Plans, 5.0 % more than in 1920.

Requested Plans, 6.5 % more than in 1920.

The Hygienic Division

In presenting you a brief summary of the work accomplished by this Division along the lines of Industrial Hygiene for the year, 1921, I may state that there were cases of plumbing work done by handy-men around factories without inspection and in violation of the Sanitary and Plumbing by-laws, such as sink wastes untrapped, fixtures without vents, traps unsealed, openings in waste and vent pipes, resulting in sewer air escaping from the drain into the workshops and factories. In some places the wastes were found discharging under floor, no connection being made with drain.

There were many cases of plumbing improperly installed, and many cases of defective plumbing. There were oth cases found where closet vents and water closet bends were open and the air vile and offensive.

The above work was corrected, and made right by licensed plumbers. The record which is:

Sinks and basins installed	29
Shower baths installed	10
Drinking bublers and fountains installed	72
Gas and chemical fumes controlled	98
Trade dusts wholly or partly controlled	159
Plumbing defects repaired	155
Drains repaired	123
Exhaust fans, hoods, ducts and vents	71
Ventilation improved	80
Light improved	17
Lunch rooms and rest rooms	18
Number of yard privies abolished and sanitary conveniences installed	569
Conveniences installed on the assessment plan	105
Defective plumbing repaired and reconstructed including industries	653
Number of drains repaired total including industries	165
New W. C.'s and urinals (in industries,	70
Basins and sinks (in industries)	42
Shower baths including factories	10
Total number of nuisances abated by this Division	4982
Houses vacated (insanitary)	48
Cellars condemned	15
Houses turned into workshops and storages	11
Houses without city water	05
Water in cellars	43
Apartment-houses unsatisfactory	13
Rooming houses unsatisfactory	23
Defective furnaces	39
Dirty closets	26
Gas escaping (illuminating)	38
Water wasting	148
Defective roofs and down pipes	90
Living in shops and workrooms	12
Insufficient light	02
Bad ventilation	10
Unsatisfactory public buildings	04
Complaints not well founded	133
Number of letters sent	3762
Number of court cases	264
Improved conditions which have been effected in industries after notice—exhaust fans, hoods, vents, etc., installed	2735

JOHN WRIGHT

Toronto, Chairman of the Sanitary Committee of the Ontario Society D.S. & H.E whose report on sanitation and legislation was one of the most important of those presented at the convention.

The Licensing of York Township

February 24, 1921. Had conference with Councillor W. S. Jury. We went into full details in connection with trouble which had risen in reference to licensing Master and Journeymen plumbers. We showed and explained to him the Provincial Statutes which governs and defines what a Master Plumber is in the Province of Ontario. We were shown how the Township arrived at the defining of a Master Plumber, in the Township, which was a copy of Clause 44 of By-law No. 102, which the City of Toronto had never adopted as this particular clause was already taken care of in the Municipal Act. This Clause 44, Mr. Davenport found out he made a mistake in the drafting as it was already taken care of in the new Amended Municipal Act for the Province of Ontario so he immediately made a ruling for the licensing of Master Plumbers under the new Amended Municipal Act, never adopting clause 44, making a ruling that Qualifications and a Regular Place of Business in the Municipality, classifying a Journeyman plumber under Subsection 2 of Section 2 of the By-law No. 102, which is a Municipal Act, as a Tradesman going from place to place or to other men's houses which brings them in as a resident of the city, which makes both Master and Journeymen Plumbers taxpayers, directly or indirectly in the City of Toronto. The Councillor asking for another meeting

in the near future which took place on February 28, 1922, at the above Councillor's home in regard to this matter and other business they had to bring before us.

Couldn't Combine With Hardware

They wanted to know if it would be possible for the Master Plumbers in the Township to have their place of business in Toronto in connection with some hardware business. They were told it would not be possible as they would have to come within the Act. They tried to show us that it wasn't fair to put them to such expense, as in the Township they were not restricted to a regular place of business, but must be a resident, going further in showing us that all their money was spent in the city of Toronto on material, clothing, groceries etc, and that they thought Toronto owed them something. They were shown that the plumbing business was different from brick and mortar and it was a question of Health to the Community as a whole and that they had all other privileges except in this matter.

Legal Advice Taken on the Above

Dear Sirs:—

You have submitted to me for opinion the question of the validity of By-law No. 6117 of the Township of York, which purports to amend By-law No. 4664 by adding the following sections.

8(a) No person shall carry on business as a Plumber or Master Plumber in the Municipality of the Township of York unless he is the holder of a license issue as hereinbefore provided, and every person so licensed shall be subjected to the provisions of this by-law and shall be a resident of the Township of York and of the full age of twenty-one years.

The Municipal Act gives power to councils of towns, townships, villages and cities to pass By-laws for "licensing, regulating, and governing" plumbers, master plumbers and journeymen plumbers. This is by Section 420 (4), as amended by 7 Geo. V. Chap. 42, sec. 20, which is as follows:

420-(4) For licensing, regulating and governing plumbers, master plumbers and journeymen plumbers:—

(a) For the purpose of this paragraph "master plumber" shall mean a person who is skilled in the planning, superintending and installation of plumbing, is familiar with the laws, rules and regulations governing the same, has a regular place of business in the municipality, and who himself or by journeymen plumbers in his employ performs plumbing work.

(b) A "journeyman plumber" shall mean a person other than a master plumber, who has been in the employ of a master plumber for not less than one year, and desires to follow plumbing as his calling.

The Statutory power is to regulate the trade and does not confer or imply any power to prohibit or prevent the trade.

Must be Resident

The by-law in question of the Township of York, provides that no person shall carry on business as a plumber or master plumber in the Township unless he is a resident of the Township and the holder of a license issued by the Township.

This is an attempt to prohibit all plumbers and master plumbers who are not residents of the Township from doing business in the Township and is clearly beyond the power of the Municipality.

The Statute which gives Municipalities power to license, regulate and govern "master plumbers," limits the power by a definition of "master plumber" which confines the power to master plumbers who have a regular place of business in the Municipality. The statute does not purport to carry the power to the extent of permitting a Municipality to impose licenses and regulations upon master plumbers who have not a regular place of business in the Municipality.

In our opinion, the by-law is invalid and would be quashed by the Courts.

Section 285 of the Municipal Act provides that any "ratepayer" of another Municipality who is injuriously affected by the by-law, may apply to squash the by-law. It is therefore available for any member of your association who is a ratepayer injuriously affected by the by-law to apply to the Courts to squash the same upon giving the usual security for the costs of the application.

MEETS JOURNEYMEN

Feb. 27th/22. Met a representative of the Journeymen, in reference to a recommendation which they were forwarding to the City Council in reference to taking the bar off the licensing of journeymen plumbers in the Township of York, giving them the privilege, under a special fee to apply their trade in the City of Toronto and the Township of York to recognize our journeymen under similar conditions. We advised that they withhold the recommendation until they were able to find out if the journeymen plumbers, in the Township of York would be a party to it and until that was done we could not see that they would get very far with the recommendation as it would have to be unanimous from our view of looking at it.

H. MAHONEY

Guelph, Ont. Former official of the Ontario Society D.S. & H.E., who took a leading part in the discussions at this year's convention in Hamilton.

RE PLUMBING BY-LAWS FOR THE PROVINCE OF ONTARIO

The validity of certain by-laws with respect to plumbing has been questioned and the following remarks are offered not as a legal opinion, but for the purpose of illuminating the situation as far as may be possible.

Certain plumbing regulations by virtue of certain clauses in Schedule B, of the Public Health Act are in force in every municipality as provided by Section 115 of the Public Health Act, except in so far as they be amended and only when such amendment has been approved by the Provincial Board of Health.

Re Plumbing By-Laws

In addition to the by-law with respect to the manner of installing sanitary equipment there rests with each municipality as provided by Chapter 192 of the revised statutes of Ontario, Section 420, the right to pass by-laws; first by councils of urban municipalities having a population of less than 100,000 and by the Board of Commissioners of Police in cities having a population of not less than 100,000, by-laws for (Section 4) "licensing, regulating and governing plumbers, master plumbers and journeymen plumbers:" (Section 4a) "for the purpose of this paragraph "master plumber" shall mean a person who is skilled in the planning, superintending and installation of plumbing, is familiar with the laws, rules and regulations governing the same, has a regular place of business in the municipality and who himself or by journeymen plumbers in his employ performs plumbing work:" These by-laws have to do, not, I take it, with the plumbing installation itself, but with the conditions as to experience, examination, regular place of business and the like of master plumbers and journeymen plumbers, who may wish to carry on their respective trades within a municipality.

The municipalities, I take it, may pass by-laws with reference to this matter without any sanction of the Provincial Board of Health. In othe words the sanction of the Provincial Board of Health of a by-law is only of those sections which could be construed as pertaining to the section of Schedule B. dealing with the installation, equipment, and inspection of sanitary conveniences or plumbing.

Advantage to Householders

As has been pointed out in the proposed regulations governing plumbing passed by the Provincial Board of Health, on May 6th, 1918, it is to the general advantage of householders and home builders throughout the province that licenses be only granted to plumbers, conditional upon the applicant passing satisfactory examination as to his fitness from the point of view of protecting the public.

The work called for by the present activity experienced by the plumbing trade in rural parts and in the smaller urban centres without organized water supplies and sewerage systems, should according to a strict interpretation of the statutes, be carried on in accordance with Schedule B. of the Public Health Act. In practice, however, the tendency is for competing firms to tender largely upon a basis, either, of conforming with the proposed regulations or upon work complying with the regulations in force in the municipality where a tendering form carries on business.

The situation presents this difficulty that the householder usually ignorant of the various requirements of this and all the regulations is unable to determine which is the better tender to accept; the tenders not being strictly comparable since they are not upon the same type of installation.

Must Have Uniformity

Efforts to obtain uniformity in plumbing regulations, have been made in many States of the American Union and the proposed Provincial Regulations were a step to obtain uniformity in Ontario. Uniformity naturally must be based upon the establishment of certain minimum requirements which may be met and elaborated upon, to the extent that the pocket-book and taste of the builder suggests. Nevertheless there should be a strict compliance with a minimum requirement.

I think it may be said that where work is undertaken by reputable firms there is a compliance with the minimum requirement as provided for in the regulations as approved May 6th, 1918. A good deal of work, however, continues to be installed, especially in municipalities where licensing is not supervised, by persons whose standing in the profession—to put it politely—is possibly not of the highest. Where the work is undertaken by craftsmen of this type, the installation cannot be said to comply with any regulations, partly owing to the fact that the craftsman is not aware of he minimum requiremens of good practice, and partly because of his desire to simplify the installation to a point, where he can get the job at a price.

Before the situation can be corrected and in order that the public mind be disabused of the impression that plumbing regulations especially favour the plumber, a good deal of active education must be carried on

throughout the province. The people must be educated; first in the necessity of certain safeguards to prevent the deterioration of equipment, such as back-venting, and they must too be educated to appreciate the advantage of different models and styles of equipment, which the supply houses have been able to furnish after lengthy experience in the art of manufacture.

It is reasonable to suppose the householder would take as much pleasure in the furnishing of his bathroom, laundry, and kitchen as the ordinary housewife takes in the conveniences supplied for carrying on her activities.

Who Shall Conduct Campaign?

As to who should carry on the campaign, it appears to me that the Municipal Inspectors, together with the supply houses should be responsible for a great deal of it, through word of mouth and by attractive advertising. The advertising should not only present a cut of the fixture, but should also indicate through the printed word the particular merit of the style.

Ontario is already recognized as possessing possibly the most attractive urban development in respect to housing that can be shown on this continent, and there is every reason to suppose that in the future she may also, hope to lead as well in the attractiveness of sanitary conveniences and in their multiplicity.

Where By-Laws are in Effect

It has been definitely ascertained that plumbing by-laws, approved by the Provincial Board of Health are in effect in the following cities and towns of Ontario.

City of London.
Town of Forest.
City of Ottawa.
City of Port Arthur.
City of Fort William.
Village of Elmira.
City of Guelph.

The fact that more of the municipalities do not appear upon this list is, not necessarily evidence to the fact that the existing by-laws are not valid.

The suggestion, however, is advanced that it might be advantageous if all the municipalities not listed and having plumbing by-laws would forward them to the Provincial Board with the request that they be approved as amendments to Schedule B. of the Public Health Act.

Plumbing Regulations and the Police

The authority for the regulation of plumbing is derived from the general police power of the municipality. According to this power the people of the municipality, acting through their legislators, have the right to protect themselves against acts of individuals which may injure the public health, safety, morals or the like. This general police power is, moreover, delegated to cities and towns. Police power is, in fact, one of the inherent powers of government, and is curbed only by what is known as "due process of law."

In order to justify the application of the police power to plumbing regulation, it is necessary to show that health, safety or morals is concerned. While these relations are usually considered to hold, the courts having consistently upheld as being constitutional the laws regulating plumbing, and while no one to-day questions the applicability of the police power, it must be admitted that in recent years there have been changes in scientific thought as to the definite relation between plumbing and health. As a matter of fact, no one to-day questions the application of the police power to plumbing regulation, for although the disease relation has been weakened, the police power itself has been expanded to take in matters of comfort and welfare.

Abuses Under the Plumbing Law

Certain abuses appear to have crept in under this law; for example, there is nothing in the law which protects the well-meaning and financially responsible plumber who maintains an adequate shop in competition with an unscrupulous and financialy irresponsible plumber without equipment, who succeeds in getting a license, and who, because he has no overhead charges to pay, can often underbid the regular master plumber. Before the law was passed plumbers were engaged on the basis of financial responsibility and personal reputation and acquaintance; now the public has come to assume that all licensed plumbers

G. FRANKLAND

For some years secretary of the Ontario Society D.S. & H.E., whose resignation, proferred in connection with his annual report to the convention in Hamilton, was left to the consideration of the directors of the association.

are presumably competent—that is, the public has come to depend upon the system of registration of plumbers and inspection of work.

Effect of Changed Business Conditions

This changed attitude is not due entirely to the law, but to changed business and social conditions, to larger cities, and to more wholesale methods of doing plumbing work, in which the individual tends to be lost sight of. It is probably not possible to return to the old individualistic conditions; hence the laws regulating plumbing should be adequate.

The present tendency is towards the elimination of the master plumber who maintains a well-equipped shop. The use of manufactured materials is giving the major profits to the manufacturers and dealers, while modern methods of installation, together with the plumbing laws and regulations, are raising the status of the journeymen. The public, meantime, is gradually losing the benefits which come from dealing with reputable and experienced master plumbers whose judgment in installing plumbing ought naturally to simplify the installation and lessen the possibilities of damage to the house by improper location. Well-equipped plumbing shops are of benefit to the community as a basis for repair and emergency work.

A fact which should be recognized by the public is that the plumbing laws, while they may result in eliminating incompetent persons from the craft, are no guarantee of business reliability, and can never be made so. The methods employed by the large corporations in marketing their products, namely, by means of mail-order houses, department stores and show rooms in cities (where no goods are sold direct to the public) also tend towards the submersion of the master plumber.

Enforcement of Rules and Regulations

The enforcement of the law involves three steps,—first, the issue of permits; second, the inspection of the work; and third, penalties for violations.

The permits are regulated locally, and practice varies in different cities and towns. Usually, written specifications are required, signed by owner or a licensed master plumber. This specification is merely a request for permission to do work at a certain place, but in many cases the specification must be accompanied by a sketch or written description of the work to be done.

There are two points of view in regard to the inspection of plumbing. One opinion is that if plumbers are properly licensed, and therefore presumably competent, honest and financially responsible, there is need of no inspection beyond that of seeing that special local requirements are complied with. The other opinion is that, in view of the facts that the personal relations between owner and plumber are not now as close as they once were, business responsibility is not assured by the possession of a license and that plumbing materials themselves need inspection, the burden of securing good work clearly rests upon the inspection authority. This brings to the front the question of the inspectors, their appointment, their competence, their opportunity to inspect, and the tests which should be applied during and after construction.

Plumbing Inspectors

Plumbing inspectors qualify under rules, the appointments are made by the local boards of health, through the Municipal Council.

An inspector must be a practical plumber, who for five years next preceding his appointment was acquiring practical experience either as master or journeyman, this being in addition to the time required for learning the business, a total of ten years. Compensation is fixed by the appointing power, subject to the approval of the council or selectmen. When an annual salary is established an inspector is not allowed to engage in or work at the business of plumbing. Provision can be made for two or more towns to unite and form one inspection district. This would follow in only a few instances.

The duty of the plumbing inspectors is to inspect all plumbing for which permits have been granted, which is in process of construction, alteration or repair, within their respective cities and towns, and to report to the board of health all violations of any law, ordinance, by-law, rule or regulaytion relative to plumbing. No inspector is allowed to inspect his own work; hence in places where inspectors are not permanently employed provision can be made for appointment of additional inspector to meet this situation.

Approval of the plumbing work is given by the plumbing inspector.

Non-Compliance With the Law

If the plumbing work is approved by the plumbing inspector, well and good. If the inspector does not approve the work he reports the case to his superior authority, namely, the local board of health, as the case may be. Notice of disapproval is sent to the licensed master plumber and after a second inspection a second notice is sent to the owner. Failure to make the plumbing work comply with the law results in having the matter turned over to the law department for action. The remedy is a proceeding in court. This process is troublesome and expensive and the matter is usually delayed and often dropped. Meanwhile the plumbing is used, and this fact itself may be advanced as an argument that the work is satisfactory. In other words, as an

(Continued on next page.)

Many Mechanics Starting Businesses

Lack of Work Has Compelled Many Operators to Lay Off Mechanics Who Have Entered Business for Themselves—Trade Extension Should Show Good Results When Conditions Stabilize

Report of T. J. MINNES, Vice-President Canadian Society D. S. & H. E.

THE REPORT of T. J. Minnes as vice-president representing the Ontario Society on the Board of the Canadian Society D. S. & H. E., was as follows:—

"Building during the past year has been curtailed for reasons of economy and house building has been impeded largely because prices have been abnormal. This condition has placed our business in a slump and prospects for the immediate future are not any too bright. Operators have, due to unavoidable circumstances, been forced to lay off mechanics many of whom have entered into business themselves. This has had a more or less demoralizing effect on the industry. Under these circumstances it seems a loss of time and energy to try to teach such individuals the aims of our association, and this applies equally well to the Trade Extension movement.

"I am satisfied that money and effort expended in the greater part of the last year would have been absolutely wasted had Trade Extension been organized a year ago. My confidence is as strong as ever in trade extension and the work done on it will show good results when conditions stabilize.

"The Canadian Society does not function as it should do and it would serve a better purpose if it were composed of executive members from the provincial societies. I cannot see where the last convention of the Canadian Society warranted the expense involved."

WANT UNIFORM REGULATIONS

(Continued from previous page.)

exercise of the police power, the law controlling the installation of plumbing, in some places is practically inert. Well-meaning plumbers and builders conform to the regulations, and as a means of establishing standards and securing uniformity the plumbing laws are a benefit. This is the normal situation, yet to a considerable extent the laws fail to give that security against violations of the regulations which the people have a right to expect, and which they innocently believe they are getting.

The difficulty appears to be that the penalty for violation of the regulation is one that cannot be physically put into effect. As long as it is physically possible to use a plumbing system which does not conform to the regulations, it is likely to be done in defiance of law, the chance being taken that court procedure, for one reason or another, will not be brought to an issue.

Physical Control

There are two ways in which physical control might be secured—first, by refusing a permit to use the sewers until the plumbing system has been approved; and second, by refusing to allow the water supply to be used, except for test purposes, until the plumbing system has received approval. The first penalty is one already found in some local regulations. It is seldom lived up to, however, because as a rule the house drain is laid early in the construction work, there is usually no shut-off valve on the house drain, and if the water is turned on it is absolutely necessary that the plumbing system be made use of. In some cases there may be no sewer to connect with, and the sewer prohibition would thus become ineffective. Refusal to turn on the water before the drainage system was satisfactory would appear to be as reasonable as the refusal of the gas companies to turn on the gas until inspection has shown the gas piping to be in satisfactory condition.

Still another penalty would be to prohibit the occupancy of the house until the plumbing had passed the necessary inspection. In the case of minor defects this would probably not be enforced, as it might be regarded as being too much of an encroachment on private rights, and thereby [illegible] court proceedings. Unless plumbing regulations are to be regarded as mere standards of procedure, some means for their enforcement, other than that of tedious and uncertain court proceedings, should be devised.

Practical Limitations of Plumbing Inspection Under Present Conditions

In considering the value of plumbing inspections certain practical conditions must be kept in mind.

In the first place, the materials used in plumbing work have undergone a change during the last twenty-five years. Lead (which gave its name to the trade) is used less than formerly; soldered joints have largely given way to screwed joints; manufactured products, including various fittings, are now purchased and merely assembled on the job; less dexterity is now required than heretofore, but good judgment is as much in demand as ever.

Some of the furnished supplies are standardized as to size and quality, but these are largely trade standards, and many articles, especially fittings, are not standardized. The local inspector can have but a limited control over the quality of the materials installed. There is need for a wider standardization of such supplies, but this cannot come about through municipal action, as the products are often made by non-resident companies which sell the goods in many municipalities. It must come about either by Federal action, by concerted action by the government, or by concerted action of the trade, the latter being preferable.

Hence the work of the inspector is largely that of seeing that the layout of the plumbing conforms to the rules and regulations, and that the piping system comprising the soil pipes, vent pipes, water pipes, traps, etc., is tight against water or air pressure. In Toronto final tests of the finished work are made because the joint between the water-closet fixture and the soil pipe is one of the most vulnerable points of the whole system. Regulations require a final test, but in practice it is seldom applied in a satisfactory manner.

Sanitary Inspection of Plumbing Already in Use—Laws Relating to Gas Piping

Local boards of health have authority to inspect buildings on complaint or because of the supposed existence of a nuisance, and are sometimes charged with the duty of inspecting tenement houses and other buildings. Such inspections commonly include plumbing, fixtures, house drains, gas pipes, rain conductors, water supply pipes, privy vaults, etc.

This work is quite as important as that of original inspection. Old plumbing in need of repair or filthy through neglect which results in unhygienic conditions. The local boards of health have ample powers to abate conditions which are serious enough to affect the health, morals or safety of the occupants of the house or building; no permits are required for plumbers to repair leaks nor, in some cases, to replace leaky fixtures, whether the leak is of water or sewer air. Cheap materials and poor workmanship may hasten bad conditions, and plumbing which legally will pass the original inspection may contain three elements of early deterioration.

Such laws relating to gas piping, rules and regulations as exist relative to these matters are found in the Ontario Proposed Provincial Regulations.

The control of plumbing in Ontario may he said to consist of five parts—licensing, regular place of business, regulations, permits and inspections. In all the cities and in many towns which have adopted plumbing regulations, master plumbers and journeymen must be examined for qualifications and licensed in order to establish their rights to do plumbing work. This requirement is in line with compulsory education, and is intended to be a guarantee against ignorance and lack of skill. Regulation consists of setting up minimum requirements for the design, standards of materials, and workmanship of plumbing. In some towns they think there are no regulations whatever, and in these towns anybody can work at the business of plumbing. Permits to do specific plumbing jobs where regulations are in force are granted to master plumbers and in some places to the owner, but in these towns of Ontario without regulations no permits are required but they must work within Schedule "B" of the Ontario Health Act. Inspection, which is carried on under the direction of the local board of health is intended to give assurance that the work has been done properly and in accordance with the regulations—a guarantee against dishonesty, carelessness, flaws in materials, and accidents. Licenses, permits, regulations and inspections invariably go together, a town adopting all or none.

(Signed) JOHN WRIGHT

PLUMBERS' AND STEAMFITTERS' UNION REFUSES 75 CENTS AN HOUR

Ottawa, Ont.:—An offer of 75 cents per hour, which is five cents per hour under last year's schedule, which was put forward by the master plumbers was rejected by the representatives of the plumbers' and steamfitters' union. Last year the men received 80 cents per hour and this year have been offered 75 cents per hour, for the wage agreement of 1922-23.

ADVOCATE APPRENTICES BE INDENTURED

Continued from page 14

mechanics at all costs, as the same conditions present themselves, in their country, as we find it in our own country to-day. It is therefore our duty as members of the craft to do all in our power, to take our young Canadian boys and train them to be expert mechanics, that they may be able to compete in the world's labor market, with honor to themselves, and the members of our Associations.

(Signed)

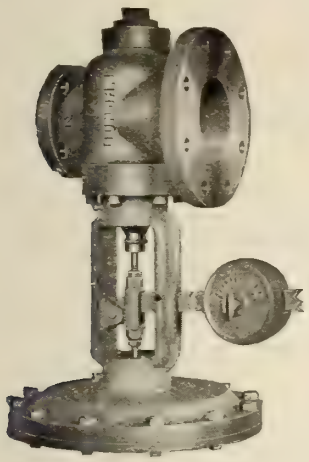
G. R. Baker.

Chairman of the Apprenticeship Committee.

New Goods of Interest to the Plumbing Trade

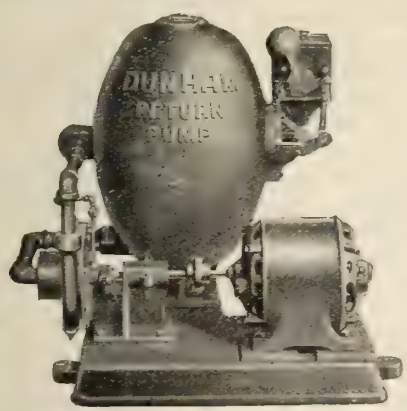
IMPROVED DUNHAM PRODUCTS

The C. A. Dunham Co., Toronto, have recently given special attention to their improved type of automatic electric-driven condensation pump units, and reducing pressure valves. The makers point out that both of these lines replace



goods previously imported into Canada.

The type of Dunham return pump, illustrated herewith, is designed to automatically pump condensate from heating systems or process work, back to boiler, heater, hot well, or other storage. The unit is provided with float switch control, for stopping and start-



ing the motor, as the water empties from or accumulates in the receiver.

The Dunham line of valves is applicable to a wide range of circumstances in reducing the pressures of steam, air, and water. It is claimed that they will reduce initial pressure to the desired low pressure in one step.

COMPLETE PUMPING SYSTEM

White and Henderson of Sudbury have just completed the installation of a pumping system for the water supply for the town of Sturgeon Falls.

IMPROVED STEEL BATH

The development of a new idea in steel baths is claimed by the Steel Trough & Machine Co., of Tweed, Ont., who have recently been granted a patent for a steel bath which is equipped with pressed steel removable legs, and with a roll rim around the top. The manufacturers claim that this has the effect of making an ordinary steel bath appear more like a porcelain product. The producers state that they are now making deliveries of these new style baths.

TUB SHOWER FAUCET

The Mueller tub shower faucet is a device which the makers claim combines the advantages of the usual cock for a bath tub, with the special shower equipment. It is made by the H. Mueller Mfg. Co., of Sarnia, Ont., and by simply pressing or pulling upon the knob of the faucet, water is available for either tub or shower as desired. This equipment is claimed to be specially adaptable for shampooing purposes. Each faucet has five feet of hose permanently attached to the bath cock, and a spray head. A bracket attachment provides a ready means of keeping both hose and spray out of the tub and yet readily available when required. The manufacturers point out that this combination can be substituted for any other type of bath equipment without difficulty, as it is made to fit standard bath tubs. The knob, or switch cock, is arranged to control the flow of water through the spout of spray attachment.

ARMSTRONG HOLDER

The Armstrong Mfg. Co., Bridgeport, Conn., has recently placed on the market two sizes of holders which have been designed for use in making both right and left hand pipe nipples. The one holder known as No. 20 is suitable for nipples from ¼ to 1 inch in size, while the other holder known as their No. 30 is for nipples ranging in size from 1 to 2 inches.

TRIPLICATE TORCHLIGHT

An electric torch light which is equipped with three bulbs has been recently introduced on the markets by the Franco Electric Corp., of Brooklyn, N. Y. In addition to the three lamps, other features of this device include a special reflector for throwing a single concentrated beam of light, a lens ring with nickel finish, and a contact box which enables a continuous light from the three bulbs or an intermittent flash, as desired. Spring lamp sockets hold the reflector in position. Colored lamps may also be inserted.

ELECTRIC GLUE POTS

Electrically-heated glue pots, in two types, jacketless and water jacketed, are being placed on the market by Londers, Frary & Clark, of New Britain, Con-

necticut, U. S. A. The former type is for continuous use, and is made from one-piece cast aluminum with permanently attached wiping bar.

ELECTRIC SOLDERING IRON

Landers, Frary & Clark, New Britain, Connecticut, are placing on the market a new electric soldering iron and glue pot. For the former it is claimed that owing to the heating unit being securely clamped to the copper, the iron is most efficient and longer life is assured to the element. This, together with the special non-corrosive material used, makes it very easy to replace the copper tip when worn. A hatchet tip for attaching to the side of the shank can be furnished, thus insuring the original contact when a new tip is required. It is supplied in a heavy nickel finish, and furnished with a six-foot heater cord and lamp socket attachment plug.

The bale is so constructed that the handle cannot fall on the side where the brush drippings are removed. It is claimed that the efficiency of the operator is greatly increased, and burnt or spoiled glue is practically unknown when made electrically.

The water-jacketed type is for using glue at intervals, the contents being always kept at the same even temperature and consistency. The outer vessel is of heavy cast iron, black japanned finish, while the inner vessel is of seamless aluminum with permanently attached wiping bar. Equipped with "Universal" Safety Plug Fuse. Both pots furnished with six-foot heater-cord and lamp socket plug.

R. H. Cunningham and Co. of Walkerville Ont., have secured premises at 351 Glebe St., London, and will equip a plant for the manufacture of electrical furnaces.

Questions and Answers Regarding Plumbing and Heating Practice

WAWAWEE AND ANDREWS SYSTEMS

Editor Sanitary Engineer:

Will you please advise me what is the quality of the Wawawee system of water and steam heating as compared with the Andrews system or other good systems.

(Signed) W. L. MILLER,
Magnetawan, Ont.

Answer.—We know nothing of the Wawawee system. We never heard about it and we have run across some queer ones in our time. We will make some enquiries.

It is a long time since we have heard anything of the Andrews system. They sold direct to house owners, and sent along a chart, so that every man could be "his own steamfitter."

Their boiler was a steel tubular type —very efficient as a heater—but we do not believe that it could last very long with the low temperature of a hot-water system.

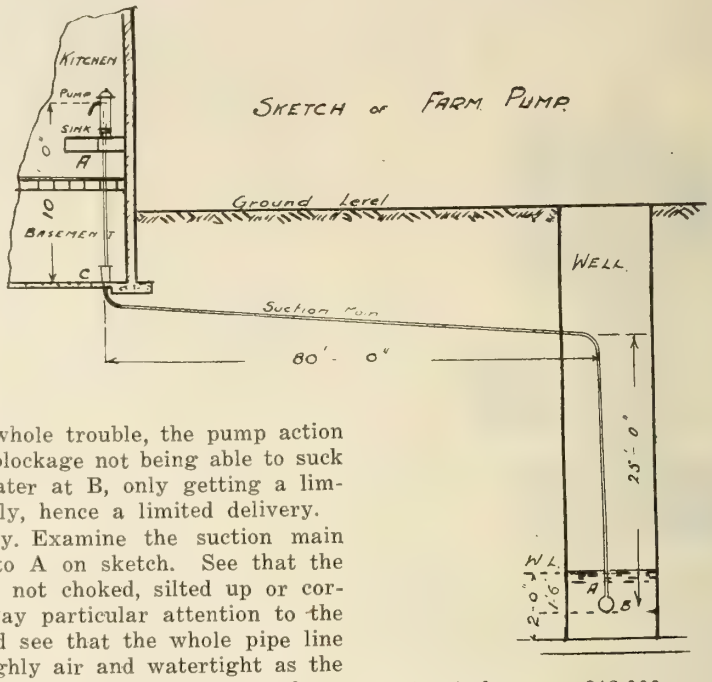
Of course the Andrews people may have a different policy now, and a different boiler, and you might get further advice by writing to Minneapolis, the home of the Andrews Company.

DEFECTIVE PLUMBING ON FARM

Re McCarthy Enquiry, Bridgewater, N. S.

The sketch of defective plumbing outfit on farm (produced) shows a long length of suction main, with two right angle bends and a high lift which is not the most ideal condition for an efficient pumping system, but as the kitchen and well are already constructed, the arrangement would be too expensive to alter. The correspondent states he has used three different kinds of pumps (not mentioned) without success, so would judge if same are of a reliable manufacture and erected properly the cause of the trouble is not connected with the pump but in the long length and arrangement of the suction main.

Firstly. As the water only comes in bucket fulls at certain periods I would examine the intake B, in sketch and make sure that it is sufficiently deep enough under the low water level of the well, and if there are hole perforations, see that the action of the water has not corroded and stopped up the pipe, examine B thoroughly and make sure water is obtaining a free access to pipes and not blocked up by sand, silt or corrosion, from the particulars this looks like the whole trouble, the pump action through blockage not being able to suck in the water at B, only getting a limited supply, hence a limited delivery.



Secondly. Examine the suction main from A to A on sketch. See that the pipes are not choked, silted up or corroded. Pay particular attention to the joints and see that the whole pipe line is thoroughly air and watertight as the suction pipe of all pumps must have clear bore and perfectly airtight or you'll get inefficient results.

Provide easy bends and have your suction pipe as direct and short as possible, eliminating friction as much as possible, at the same time overhaul your valve connection at C, instal new washers if worn and have valve working properly, making pipe line and connection properly air and water tight from A to A on sketch.

WESTERN ONTARIO NEWS

Grant Fox, Olinda, Ont., wants prices on heating and plumbing for new $4,000 bungalow.

R. J. Robertson, R. R. 1, Orton, Ont., will receive tenders until April 22 for new school, hot-air heating.

Tenders will be received until April 22 by F. Littlejohns, Highgate, Ont., for drainage work costing $5,000.

Ernest Noble, Ruthven, Ont., wants prices on hot-air heating, plumbing and electrical work for new $7,000 residence.

Noble and Rich of London, Ont., have been awarded contract for plumbing and hot water heating for new office building.

William Skelly, 242 King St., has been awarded contract for heating and plumbing for new $5,000 residence for Percy Ashton.

Noble and Rich, London, Ont., have been awarded plumbing and heating contract for new $12,000 residence for P. B. Fetterly.

G. S. Smyth, Caledonia, Ont., wants prices on heating, plumbing and electrical work in connection with new $5,000 residence.

E. F. Earl, Milton, Ont., has been awarded plumbing and heating contract in connection with addition to the Children's Shelter, costing $6,000.

Lawrence Williams, Acton, Ont., is preparing plans for new $4,000 residence and wants prices on heating, plumbing and electrical work.

J. M. Small, Arthur, Ont., is preparing plans for new residence to cost $4,500. Prices wanted on heating, plumbing and electrical equipment.

William Barber, Everton, Ont., is preparing plans for new $5,000 residence and is interested in prices of heating, plumbing and electrical equipment.

F. C. Taylor, Gorrie, Ont., wants heating, plumbing and electrical work in prices on heating, plumbing and electrical work for new $4,500 residence.

Dr. W. F. Babb, Waterloo St., London, will have plans prepared for new residence to cost $20,000. Hot water heating, plumbing and electrical work.

In connection with improvements to the waterworks system, John McHattie, secretary Water Board, will receive tenders until May 1 for new reservoir and new motor-driven pumps. Estimated cost $42,000.

Patterns for Segmental Ships Cowl

Written for Sanitary Engineer by O. W. KOTHE, Principal St. Louis Technical Institute, St. Louis, Mo.

RESPONDING to the enquiry of Mr. Milton Moore, for patterns of a ship's cowl, will say there are about three or four ways of making cowls.

The four piece segmental cowl such as we show here is called the English Cowl. Another similar design made in six pieces is often called the American Cowl. And then we have those made in gores. This latter kind, anybody who can layout a taper joint of pipe off center, ought to be able to lay one of these out.

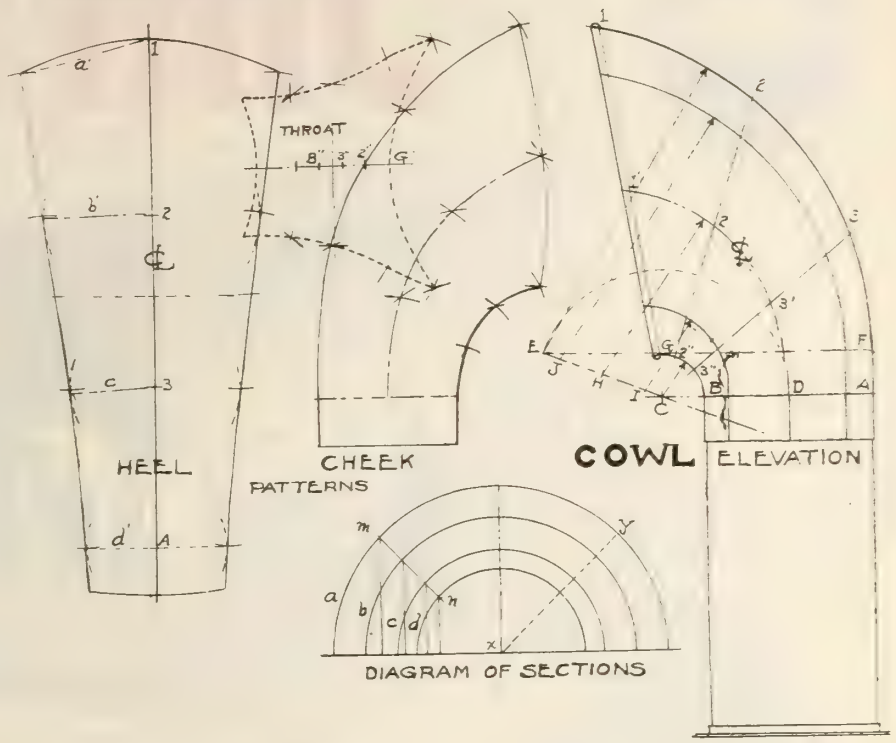
Segmental cowls are harder to lay out, because they form double curved surfaces, and this again, permits a person to only lay the patterns out approximately accurate. Owing to the double curved shape, part of the metal must be either stretched or shrunk, and in either case this is a factor governed by the ability of the workman.

But to design our cowl, first draw the diameter line A-B, and use 1/4 of it as the throat radius B-C. With this strike the throat line and then draw a horizontal line tangent to it as E-F through G. Now use C-D as radius, and strike the arc D-E. Point E will be the center for describing the heel line 1-F of cowl.

By drawing the pitch line E-C, and bisecting it, we obtain point H which enables us to describe the center line 1'-D of elevation. The seam lines are set on 45 degree lines using semi-circles for sections, and then the points in the mouth line and base line are established—the points I and J are located by a series of trials. From these points the seam lines are described as shown.

Next divide the heel line 1-A in any number of equal spaces, and draw lines to C. Now using 1'; 2'; 3'; D as centers; pick the half diameters, and with them describe the diagram of sections from center X. Line m-n is the heel seam line, while x-y is the throat seam line. The vertical lines from m-n represent half diameters from points in the seam line.

If the method we show here for deriving the patterns is carefully followed out; the patterns will be developed to as near their required shape as is possible to develop them. To set out the heel pattern; pick the girth from heel of elevation, and set it on a line as 1-A. Then spanning dividers to take in the girth curve along lines a-b c-d along arc, arcs are described in pattern as radius a'-b'-c'-d' shows. If the curvature at the top and bottom is desired—then a girth line must be developed and starting with the center horizontal line—we step off our lengths both ways, and that gives us the curve at top and bottom. But this latter is not necessary, since some trimming is always required after hammering into shape.



The throat piece is developed in a similar way as is shown by the dotted position. The cheek pattern is a little more difficult in that we work from the center line in a triangulating fashion, developing true lengths from the differences in half diameter lines in diagram. But in general the exact outline of cheek in side elevation between seam lines can be used. To this 1 1/2 to 2 inches of metal is allowed all round, and this allows for the metal to make up the double curvature, and also for trimming purposes after hammering into shape.

Templates are worked out giving the true shape of each piece, and these have rivet holes marked off exactly right. So when the various parts are formed up to snugly fit over the template; the holes are marked and edges are marked for trimming. This hammering process can only be learned by actual experience, and there is no amount of reading or writing that can inspire this knack in a workman.

HAVE LARGE HEATING CONTRACT

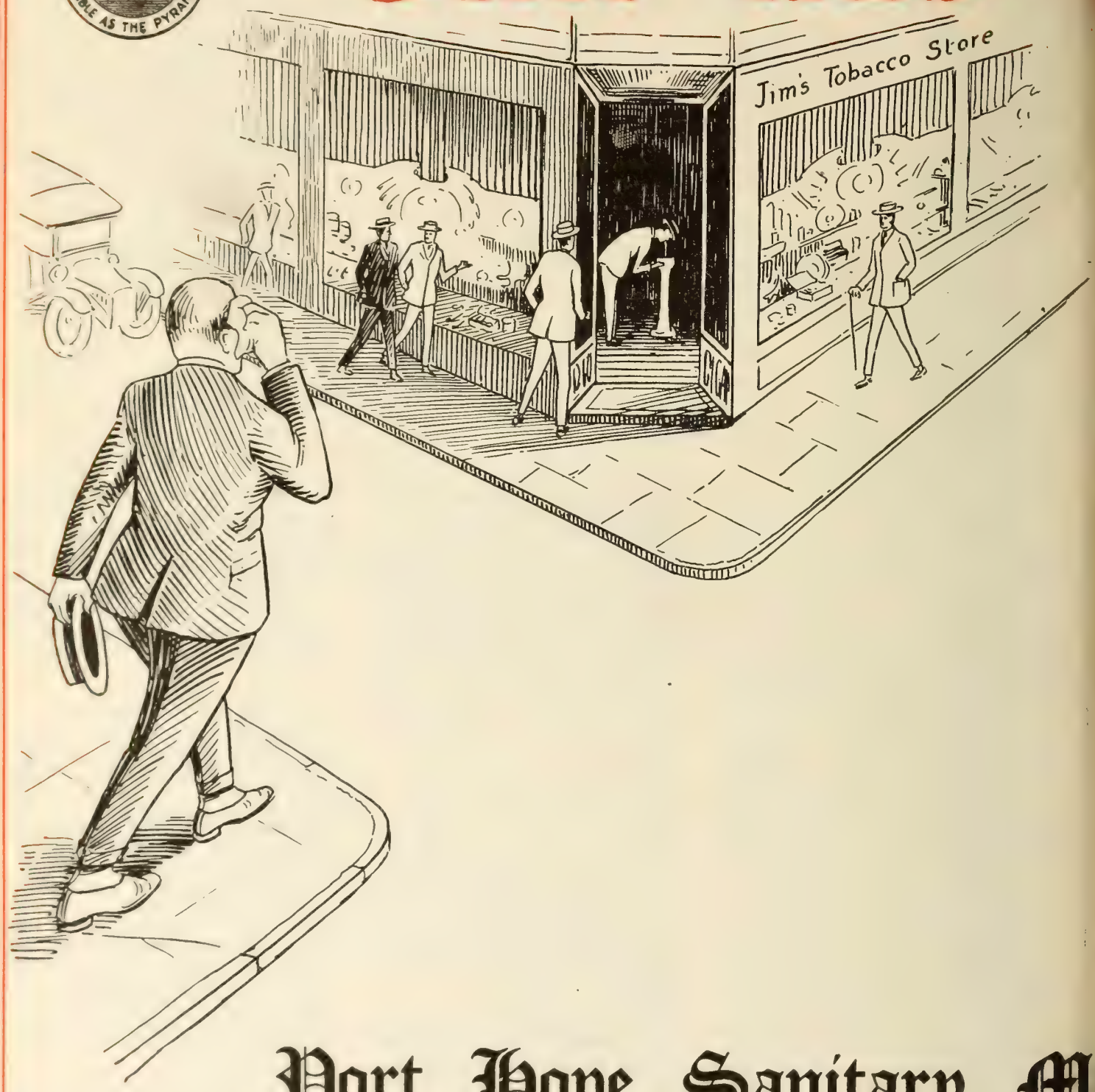
Kitchener, Ont.:—Battler & Freiburger have been awarded plumbing contract for installations in the new additions to the Suddaby School. This work will cost $30,000 this tender being much lower than the nearest competitor. This firm has a number of big jobs to its credit, having installed the steam plant for power and heating in the Ames Holden Rubber Factory, the heating system at the new power house at Kitchener and Waterloo hospital. This firm have been installing a number of water systems in the rural district, particularly those with electric pumps, and an endeavor is being made to educate local prospects to the value of installing such a system when building.

INJUNCTION UNOBTAINABLE

Port Credit, Ont.:—Opponents of the waterworks are stated to have been advised that it would be useless to apply for an injunction. The municipal authorities have been apprised that the order of the Ontario Board of Health gives the Council full authority to proceed. The Councillors had been informed that they could have issued debentures for the plant without a vote of the ratepayers had they so desired, as the law only called for a two-thirds vote when a service was called for by the Provincial Health Department. The Council, both last year and this is on record unanimously for the earliest possible construction of the plant.

Eggett & Co., London, Ont., have been awarded plumbing and heating contracts for new $8,000 residence being erected by John Putherbough, 1006 Wellington St. Owner plans erection of two other dwellings of similar cost and will want prices on all heating and plumbing equipment.

Jim has



Port Hope Sanitary Ma

Head
TOR

ne Right Idea

THERE'S a tobacconist (we'll call him Jim) operating a real live store down in South-Western Ontario.

Jim's always willing to entertain any new idea that looks as if it would bring him business, so when his local plumber suggested that he instal a drinking fountain for his store for public use, Jim saw at once that the idea was good and put in his order forthwith.

He had it placed near the door, where it could be seen by passers by and pretty soon Jim's store began to swarm with thirsty citizens. Hundreds of people would drop in for a drink—of water—every day and before leaving a lot of them would discover that they needed tobacco, cigarettes, cigars, matches or some other of the several lines that Jim had attractively displayed.

Now here's the point—right in your district there are dozens of retail stores—every one a prospective customer for a drinking fountain—every one of 'em Jims when it comes to taking up an idea that's going to mean increased business.

The hot weather's coming—Get after this easy business now.

The "Sanitas" Fountain

THE "SANITAS"

facturing Company, Limited

O

Sanitary Engineer
Plumber and Steamfitter of Canada

ESTABLISHED 1907

Member Audit Bureau of Circulations

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Enforce the Regulations

EVERY day sees the need for the employment of certain of the regulations which were provided for in the suggested plumbing by-laws drawn up for enforcement throughout the province of Ontario and which have been pigeon-holed by the present government. It has been stated by those who are closely in touch with the situation that the reason the farmers' government in Ontario has delayed action in enforcing this splendid set of plumbing regulations is because of the fact that plumbing conditions in the rural districts are such as to necessitate considerable repair and renewal under the suggested regulations and the farmer as a class has not been sufficiently educated to the value of modern sanitary equipment to appreciate the necessity of such regulations.

No doubt the sanitary and heating operators of this country have themselves to blame to some extent for this condition, as there has been a great lack of educational effort put forth in the rural districts, but the fact remains that the expense involved in such legislation is not desired by farmers and under the present government it will be hard to bring these by-laws into effect. True they have been enforced in some centers throughout the province by local action, but steps should be taken having for its object the early enforcement of the regulations as a provincial measure, for only then will improved sanitary conditions be achieved and those in the rural districts provided with the modern requirements which necessity demands.

* * * *

Need of Organization

THERE ARE many important problems before the sanitary and heating operators to-day, as indicated by the great variety of topics brought up for the all too short discussion which took place at the convention of the Ontario Society in Hamilton. To make a satisfactory solution of these problems requires the best brains which can be applied to them, and the most representative opinion which can be secured. To bring about this condition calls for organization on a scale not hitherto accomplished in Canada. As a result of this lack of cohesion there is a tendency to split among the provincial organizations where such exist, whereas they should be combining to make the representative body, the Canadian Society, an organization which can carry great weight. The question of the constitution of that organization is one which can very well be left to debate but some plan can be contrived whereby the Canadian Society, whether a convention body merely composed of representatives of the provincial plumbing and such organizations, speaks with a voice which will be heeded as representative of the sanitary and heating industry of this country.

This cohesion must also be evident in the local organizations for each is but a link in the big chain, and the chain is no stronger than its weakest link. The days of petty jealousies among members of these organizations must be forgotten and all pull together for the common cause. The trouble which exists between sanitary engineers of York Township and of the City of Toronto over a "resident" rule which the former are enforcing as result of this measure being incorporated in the police regulations of the City of Toronto, is an example of the difficulties which can be smoothed out by an organization fully representative and working in absolute harmony. To achieve this end local organizations should be encouraged where the required number of operators are present and these organizations should be part of the chain comprising provincial and national organizations so that the operators of the country speak with one voice.

* * * *

Inter-Dependence

A RECENT development of the process of readjustment emphasizes the interdependence of all branches of our social and business interests. This is of particular importance in indicating the true relation of the agricultural and industrial phases of our economic system. For a great many years the farmer did not trust the business man and this lack of confidence was also felt by some business men when farmers became an important influence in the political life of the country. Developments coincident with the period of readjustment have, however, shown more clearly the true relation of these factions than might otherwise have been the case and benefit should result.

The farmer has seen that co-operation with the business farmer has recently been in dire circumstances due to the big about a satisfactory solution of his difficulties, and the business man has seen the bad effects of neglecting to look after the interests of the agricultural sections. The Canadian farmer has recently been in dire crcumstances due to the big decline in value of agricultural products and the closing of certain markets by the application of tariff protection. Recently this situation has improved and the farmer is to-day in better position to procure his requirements. As a class, the agriculturist has learned something of his interdependence with other interests. Prosperity will be aided largely in the future by a sympathetic understanding between both these groups, and in this the rural hardware merchant can play an important part, not only in helping to improve general conditions but in discouraging the tendency in agricultural districts toward the establishment of distributing agencies which are not conducive to the best business interests of the country as a whole.

* * * *

The Building Situation

IN MOST sections of Canada house building is becoming very active and it should not be long before much of the shortage of accommodation which has existed for some years, is relieved. An official of the works department in Toronto stated to Sanitary Engineer this week that an average of thirty-five water installations a day were being handled in the city at present, in connection with new residences only. The past few months have seen a considerable fall in prices of building materials, and while wages have not declined to a marked degree, agreements have now been consummated with practically all classes of workers and wages will at least be stable for some time. On this basis much deferred construction is being proceeded with as far as houses are concerned.

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights —Keep the Entire Series Where It May Be Referred To And Studied

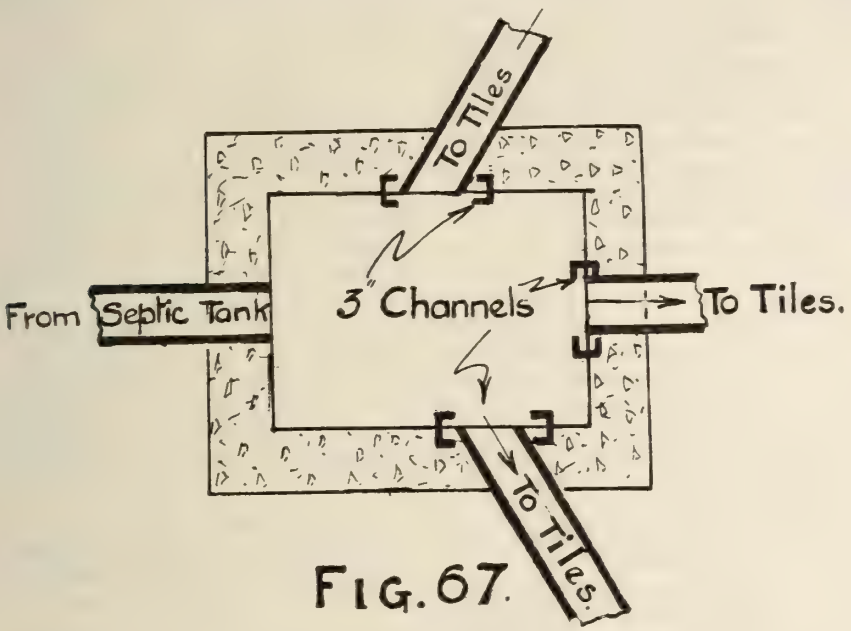


FIG. 67.

FIGS. 67, 68 show a three-way distributing chamber built of concrete and having channel irons built in the wall protecting each main supply pipe. An iron plate slides in between these channels and prevents the sewage discharging down any pipe unless so desired.

It is not the intention, in this article, to treat extensively the many different kinds of artificial filters as most private installations are installed in the country where land is plentiful and cheap and therefore there is no necessity to resort to artificial filtration, but in some isolated cases filter beds have been installed for larger institutions in order to confine the disposal of the sewage to one location in a small compact area and again where the land is totally unfit for sewage filtration.

The work on all artificial filter beds differs fundamentally from the tank action as the process of oxidization of the offensive matters present in a tank effluent must be rendered permanently imputrescible and inoffensive by conversion into harmless salts.

The same as in ordinary land treatment the supply of oxygen from the air is the only practicable source of purification and the mere fact of bringing the two into contact with each other does not signify purification or final purification of sewage would be easily accomplished: they must be held in a state of intimate admixture for a certain time in the presence of certain bacteria which, under certain conditions and facilities, exist.

The certain conditions and facilities mentioned above are provided by passing the sewage evenly through a mass of irregular solid matter such as coke, clinkers, etc., which contain air in the interstices and which support resting and breeding places for the bacterial germs and are practically and economically accomplished in the various kinds of artificial filter beds.

The chief objects to be aimed at in designing a successful filter bed are the application of sewage evenly with the thinnest possible film over the germ-coated filtering media, in the presence of abundant air and making the distance the liquid has to travel as great as possible.

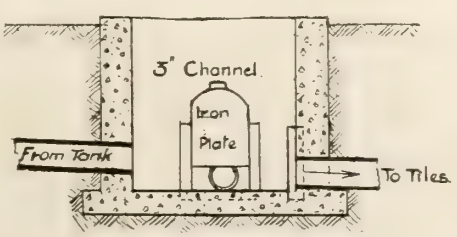


FIG. 68.

TENDERS WANTED

Thos. Janes, 111 High St., London, wants prices on hot air heating, plumbing and electrical work for two new residences to cost $8,000.

William Knapp, 885 Adelaide St., London, wants prices on heating, plumbing and electrical work for new $3,500 residence.

William Smith, Leamington, Ont., wants prices on heating, plumbing and electrical work for new $20,000 business block.

T. L. Patridge was awarded contract for plumbing and heating for $7,000 duplex residence at London, Ont., for James Sandford.

Frank Dunn, 78 Stanley St., London, is erecting new $4,500 residence and wants prices on heating, plumbing and electrical work.

T. Lesson, secretary of the school board, Springfield, Ont., wants prices on steam heating, plumbing and electrical work for new $45,000 school.

Dr. Dewar, secretary of the school board at Melbourne, Ont., wants prices on hot air heating, plumbing and electrical work for new $20,000 school.

Frank Snell, 9 Elmwood Ave., London, Ont., wants prices on hot air heating, plumbing and electrical work for new $3,000 residence.

J. D. Fisher, R. R. 1, Stratford, Ont., will receive tenders until April 10 for the construction of tile drains in the Tp. of North Easthope.

R. Cross, Sparta Road, Union, Ont., is preparing plans for new $4,000 residence and wants prices on heating and plumbing.

C. Seward, East Branch, Wallaceburg P. O., wants prices on heating, plumbing and electrical equipment for new $4,200 residence.

Dr. C. L. Huffman, Forest, Ont., wants prices on heating, plumbing and electrical equipment for new $5,000 dwelling for which plans are being prepared.

The Wright Teale Co., London, was awarded contract for plumbing in connection with alterations to store of J. A. Nash.

Henry Gorman, 370 Oxford St., London, Ont., wants prices on hot air heating, plumbing and electrical work for new $4,500 residence.

W. W. McRae, Petrolea, Ont., is preparing plans for new $5,000 bungalow and wants prices on hot air heating, plumbing and electrical work.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

BUSINESS CHANGES

McAlindon & McCormick, of Kirkland Lake, Ont., have discontinued their plumbing and heating business.

PERSONAL

G. W. Henderson, factory superintendent of Geo. W. Reed & Co., and K. Barwick, assistant, will open business for themselves under the firm name of Henderson & Barwick Co., sheet metal works. Upon severing their connections with the above firm a presentation was made by fellow employees.

OBITUARY

Mr. Frederick Parkin, a well-known stationary engineer of Toronto passed away recently at his residence 43 Brookmount Road, Toronto. Mr. Parkin was born at Wexford, Ont., in 1866, but most of his life was passed in Toronto. He was for many years engineer at the Consumers Gas Company. He was a member of the Orient Lodge, A. F. & A. M., and Wilton Lodge I. O. O. F. Mr. Parkin is survived by his widow, and two sons, one of whom is assistant professor of mechanical engineering at Toronto University, the other one being at home. He also left a brother Manuel of the civic works department, Toronto.

The death occurred at St. Johns, Que., at his home, of William Campbell, president of the Dominion Sanitary Pottery Company. Mr. Campbell had been ill five days with pneumonia. He was well-known in St. Johns and in Montreal, having been for fifty years connected with the pottery trade. He was born in Glasgow, 87 years ago, came to Canada 50 years ago, and settled in St. Johns as a pottery expert for the Duncan and Alexander Macdonald Pottery Company, with which firm he remained for many years. Later he entered business for himself in the firm of Campbell and Pervis. He was later connected with the Canadian Trenton Pottery Co., and was several years ago made president of the Dominion Sanitary Pottery Co.

PLUMBERS AND SUPPLY HOUSE MEN SPEAK AT BUILDERS CONVENTION

Optimism regarding the outlook for the building industry in Toronto during the present season featured a dinner held by the Builders' Exchange Section of the Board of Trade. The affair was featured by addresses from President Fred Armstrong, of the Port Hope Sanitary Manufacturing Company, and George Clapperton, of the firm of Bennett and Wright.

Mr. Armstrong dwelt particularly with the outlook in building for the present year. He voiced belief that the small boom which was now developing would have the effect before long of restoring confidence and convincing the general public that the industry had reached levels of stability.

Mr. Clapperton spoke of the work the Kiwanis Club was doing for the boys of the city, and urged the contractors to take on as apprentices as many boys as they could. In this way, he pointed out, they would be performing the double duty of helping to relieve the vexed problem created by the shortage of good mechanics in the building industry, and also of giving employment to many boys.

ST. CATHARINES PLUMBERS ON STRIKE

St. Catharines, Ont.—Union plumbers of the city are on strike as a result of a request by their employers to accept a decrease in wages. The plumbers were asked to take a cut from 90 to 75 cents an hour. The master plumbers say that they will pay 75 cents an hour and no more, and intimated that they were considering the operation of open shops.

HAMILTON FIRMS REPORT INCREASED BUSINESS

The Dominion Sheet Metal Corporation, Limited, of Hamilton, has resumed full operation. For the past eight weeks the plant has only been operating from fifty to sixty per cent of its capacity. Increased business from principal Canadian points is said to warrant increased production. Orders are said to have been coming in from all parts of the country and from as far West as Vancouver. An encouraging feature is the amount of export business that is being handled. This is coming from European countries as well as from Great Britain.

SEWAGE SYSTEM WILL BE COSTLY

Hamilton's sewage disposal plant is to be a costly proposition. That much is clear, despite the refusal of experts to make any comments as to the probable cost of a local plant. But rough estimates place the expenditure for a local system at from $2,000,000 to $3,000,000.

City Engineer Gray admitted that some such outlay would in all probability be required, but this would, of course, take care of the city's needs until it has grown to two or three times its present size. At the present time it is estimated that there is a water flow of about 13,000,000 gallons a day. Added to this is about 7,000,000 gallons for storm emergencies and additions, and about 2,000,000 more gallons for seepage. This would bring the total to about 20,000,000 or 22,000,000 gallons of sewage to be treated daily.

Experts place the cost of disposal at from $35,000 to $50,000 per million gallons of sewage, so that taking the present requirements, and multiplying by two or three for the city's growth the estimate of between $2,000,000 and $3,000,000 is reached.

It will depend on what type of plant is decided upon for Hamilton what the cost will be, and it will be some time before that is definitely decided.

SECURE TWO CONTRACTS

Stratford.—Messrs. Dufton and Saunders have been awarded the plumbing, heating and sheet metal work contracts for two houses, one on Grant street, for Mr. Polger, and the other on William street, for Mr. Burt.

ADVOCATES CHANGES IN WATER SYSTEM

Provincial Sanitary Engineer Dallyn inspected the filtration basins of the Weston water system and recommended a slight re-arrangement in the alum treatment, as a move towards making the water supply adequate for many years at a small expense. According to Mayor R. J. Flynn, the opinions of several engineers were obtained before resort was made to the Provincial Health Department, some even recommending the installation of a fourth filter. The source of water supply is the Humber River.

DOES NOT APPLY TO JOURNEYMEN

A deputation from the journeymen plumbers waited on York Township Council to enquire if the new bylaw recently passed, prohibiting city residents doing work in the township, applied to them. They were informed that it did not apply.

CONSTRUCT RELIEF SEWERS

Toronto City Council has decided to apply for legislation to authorize an issue of debentures for relief sewers, relaying outfall pipe at main sewage disposal plant, water main extensions, shelter and refreshment building in High Park, and heating of live stock arena, amounting to a total of $2,000,000. Two items on the list were struck off, as authority has already been secured—200,000,000 gallons reservoir at the Island, and intake repairs, at a total cost of $950,000.

$1,250,000 FOR COMPLETION OF MONTREAL AQUEDUCT

In order that the aqueduct and new pumping station be put into operation at the end of the current year, the executive committee of the city council are submitting a report to the city council recommending the voting of the sum of $1,250,000. This expenditure is for the purpose, among other things, of connecting the new pumping station with the water distribution system. The money will also be available for the building of a large filtered water basin, and the construction of an emergency intake from the aqueduct to the pumping station. This latter will be a 9 foot steel pipe, lined with concrete, about 300 feet long. Its purpose will be for emergency use if anything goes wrong with the filtration plant. Hydraulic control apparatus, a new structure for the distribution and inter-connection of water mains, and seeding the banks of the canal to prevent slushing in are included among the requested improvements.

OIL HEATING PLANT IN RAILWAY STATION

A complete new system of heating has been installed in the North Bay station of the C. N. R. instead of the usual coal burning method, the buildings have now the very latest in this line in the form of air controlled oil burners. J. J. Powers of Toronto, the inventor and manufacturer of the system, personally supervised operations.

In the large hole, which was dug some time ago, in front of the station, was placed a 12,000 gallon tank which contains the supply of oil and can be filled in one hour and fifty minutes. A small engine, operated by electricity, with a fan belt attachment for supplying air, is used to conduct the oil and air to the furnace. Here are three burners, working on slides, which can be used individually or collectively. The nozzles of the burners are fitted with small oil cups upon which the oil is deposited. The air coming in around the cups causes them to revolve with great rapidity and shoots the flames clear across the fire box, underneath the boiler. The heat of the fire, it is claimed, never fluctuates, and can be regulated to any desired degree.

Stricter Supervision of Plumbing

Must Have Water Test on Piping After June 1 in New Buildings — Unlicensed Plumbers Cause Trouble

MONTREAL.—Notice came from city authorities, the sanitation department, that stricter supervision of plumbing work will be insisted on in future to ensure better workmanship, as a safeguard to public health. Plumbers are reminded of a by-law which provides that plumbing work shall not be used unless it has been tested in the presence of the sanitary engineer or his representative, with the water test, or if this is not practicable, some other method of testing which is considered reliable. Further notice is to the effect that from June 1st next no installations in new buildings, and no new stacks in existing buildings, will be accepted unless a water test is applied on the piping before the installation of fixtures. A second test also may be insisted on after the installation of fixtures if the Health Department so desires.

Licensing is also brought to attention, and master plumbers are reminded of the by-law that provides that all plumbers must be licensed, and no master plumber shall employ a journeyman who is not licensed by the city, and also holder of a certificate from the Board Examiners of Plumbers.

A Step In The Right Direction

With the above notification coming from the Montreal city hall, it is felt that the local craft are now one step nearer their goal. While it may sound as a note of warning, the legitimate master plumber or journeyman will look upon it as a partial remedy to the existing evil. Undoubtedly there is reason for such, coming from the city authorities, the fault, however, for the most part, is not to be found in the ranks of recognized engineers, but amongst the class that for some time past the local Master Plumbers Association have endeavored to bring to the attention of those in authority at the city hall, the plumber who is not licensed, who has no place of business, but still may be found daily employed throughout the city. While perhaps not in all cases is the work of legitimate plumbers perfect, or beyond reproach, it may be safely stated that much of the unsatisfactory workmanship is done by hands other than those of men who have the interests of the trade at heart.

Letters To The Editor

COMPANY CHANGES NAME

Editor, Sanitary Engineer,
Toronto.

We notice in your issue of March 15th under the heading "Business Changes" the following item: "Westmount Plumbing Co. has dissolved." We beg to inform you that the company has not been dissolved, but only changed name in order to cover a new line of work in which we have now indulged. No changes whatsoever have been made in the partnership or managership of the company.

Westmount Plumbing & Roofing Co.
Per E. Gauthier,
Manager
Westmount, Que.

* * * *

JOURNEYMEN NOT AFFECTED

Editor, Sanitary Engineer,
Toronto.

At the regular meeting of this body held on April 5th, 1922, the item which was printed in the March 15th issue regarding a reduction in wages for Montreal Plumbers was taken up. We will state that this body is in no way a party of the mentioned negotiations, and would further state that the members of the above body are receiving a higher rate of wages than is mentioned.

Signed
John N. Currier
Rec. Secretary
Local No. 144
Plumbers & Steamfitters
417 Ontario St. East
Montreal.

* * * *

Editor, Sanitary Engineer,
Toronto.

Building prospects for Mitchell and district seem to be in first class condition. Have supplied tenders for eleven or twelve new dwellings, but none of them are let to date. The high school board will build a new High School here, this year or early next year. They have not come to a decision yet. We have been awarded the contracts for the hot water heating of Mr. C. J. Larkworthey's business block, and hot water heating in Mr. Fred Wassman's residence both in Mitchell.

A. Sachs & Sons.

PLUMBING BY-LAW SHELVED

The proposed plumbing by-law which was recently given its first reading by Scarboro Township Council, was shelved until next November, owing to the determined opposition of the Ratepayers' Associations.

PETERBORO SAVED $25,000 IN NEW FILTRATION PLANT

Peterboro, Ont.—A statement of the cost of the new filtration plant furnished by the Utilities Commission shows that $25,000 has been saved in its construction, an unusual occurrence in municipal work in this city. Of the $350,000 appropriated by the people, only $325,000 has been spent. In laying the pipe lines themselves the Commission saved over $10,000.

The plant is now in full operation and the condition of the water is much improved.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

THE MARKETS AT A GLANCE

NUMEROUS price developments are again recorded on the current plumbing and steam-fitting markets, the principal changes being in a downward direction. Reduced quotations are noted on lead products, the list prices of lead pipe and waste being lowered fifty cents, while a similar recession is recorded on traps and bends through revised discounts. Other declines have appeared on certain brands of welding compound, practically all styles of hammers, and the No. 2 combination vise. Some minor revisions in scrap materials are also reported from eastern market centres.

With the apparent stiffening in quotations on steel products generally, there has recently developed a firmer undertone in many sanitary and heating materials. Wrought piping, eavestrough and conductor pipe, are noticeable in this respect. The corrugated sheet market also shows some improvement, which is attributed to the stronger tendency in flat galvanized centres. Boiler tubes are still quoted on a more or less nominal basis, while a seasonable volume of trade is recorded in radiators and boilers. An active movement has been reported in soil pipe and fittings, with buying of range boilers remaining of moderate proportions. Enameled ware and closet outfits also come in the category of supplies which are now experiencing an improved demand through the reflection of activity in construction circles, a movement which is expected to develop in various other materials during the ensuing season.

MONTREAL MARKETS

MONTREAL, April 13—Revisions in prices on lead products offer one of the features in plumbing and steam-fitting supply markets. List prices on both lead pipe and waste are reduced, while the discount on traps and bends is changed, and lead sheets, in all weights, are also one-half cent per lb. lower. Waste material prices are revised, both higher and lower quotations appearing on these markets. Practically all kinds of hammers have new lower prices, the reduction being 12½ per cent. No. 2 combination vise is now quoted at $3.10.

There is now a firmer tone in many lines of iron and steel products, this condition being particularly noticeable on such products as sheets and bars. Wrought pipe has also become firmer in tone, while other commodities such as corrugated sheets, eavestrough and conductor pipe, and boiler tubes, have developed a tendency to stiffen. Trade in general continues to improve, and the progress in building construction is slowly reflecting on many required supplies. Buying is still curtailed in ingot metals, but with slightly more interest evident on the part of those interested.

GENERAL REDUCTION IN LEAD PRODUCT PRICES

Montreal.

With the exception of solders and lead wool, all lines of lead products show a reduction in price. List prices on pipe and waste are reduced 50 cents per 100 lbs., discount remaining at 10 per cent. Traps and bends are now quoted at less 17½ per cent, former discount being 10 per cent. Lead sheets, in all weights, are ½ cent per lb. lower.

It will be remembered that recent revisions were made on zinc sheets and solders, and products listed in foregoing paragraph have up until the present remained unchanged. The present reduction, therefore, brings all lines to lower levels in sympathy with metals in primary markets where an easier tendency has been displayed.

Other virgin metals are slightly steadier, and it is felt that the finished products will be on a more stable basis, now that revisions have been made. Following are revised quotations;

LEAD AND ZINC PRODUCTS—

Lead pipe, per 100 lbs.	12 00
Lead waste, per 100 lbs.	13 00
Note—Lead pipe is subject to a discount of 10%	
Lead traps and bends	17½% off.
Lead wool, lb.	
Lead sheets, 2½ lbs.	0 10
Lead sheets, 3 to 3½ lbs., sq. ft., lb.	0 09¾
D., 4 to 8 lbs., sq. ft.	0 09
Cut sheets ½c lb. extra and cut sheets to	
Solder, guaranteed, lb.	0 25½
Do., strictly, lb.	0 23½
Do., commercial, lb.	0 20½
Do., wiping, lb.	0 21½
Do., wire, lb.	0 33½
Zinc, sheets, casks	0 11
Do., broken lots	0 11½

ANOTHER DECLINE IN HAMMER PRICES

Montreal

A reduction of 12½ per cent. is announced on practically all kinds of hammers, including nail hammers, machinists', blacksmiths', rivetting, sledges and mauls.

NO. 2 COMBINATION VISE REDUCED TO $3.10 EACH

Montreal

The No. 2 combination vise has a new lower price and is now quoted at $3.10 each.

CORRUGATED SHEETS ON IMPROVED BASIS

Montreal.

A somewhat firmer tone exists in the corrugated sheet market owing to the improvement noted in flat galvanized sheets. While this is not yet of sufficient extent to directly reflect on corrugated sheets, according to a local dealer, it may offset the easier tendency displayed in recent weeks owing to certain distributors offering a price concession, especially on the heavier gauges. Future developments in the galvanized sheet markets therefore, will be watched closely by those interested. Following are present list prices and discounts:

CORRUGATED SHEETS—	Per 100 sq. ft.
No. 28 gauge	6 50
No. 26 gauge	7 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50

Less 10 per cent.

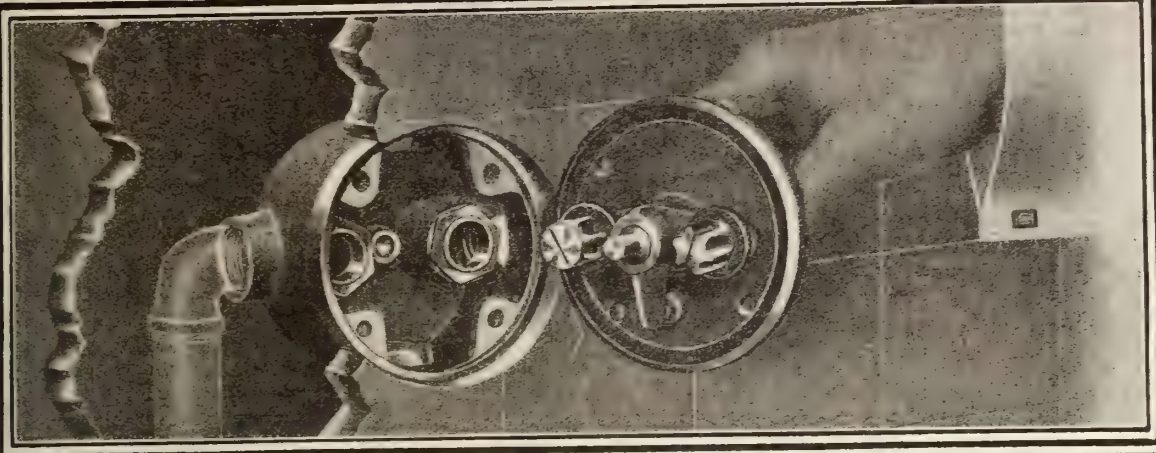
Lighter than 24 gauge and wider than 27 inches, 75c a square extra.

REVISIONS RECORDED IN SCRAP PRICES

Montreal.

Quotations on certain lines of waste materials are now revised, both higher and lower prices featuring the market. Rubber shoes are quoted slightly less, and wrought iron is reduced from $10.00 to $9.00 per gross ton. The light brass

(Continued on page 32)



Niedecken Mixer for Shower Baths

The most satisfactory and economical device made for shower baths. All working parts readily accessible and easily replaced if necessary.

Operates on compression principle—mixes hot with cold water in conjunction with an absolutely dependable device to prevent scalding.

The Niedecken Mixer is immediate in action, thoroughly efficient, absolutely dependable, and gives perfect control under all conditions.

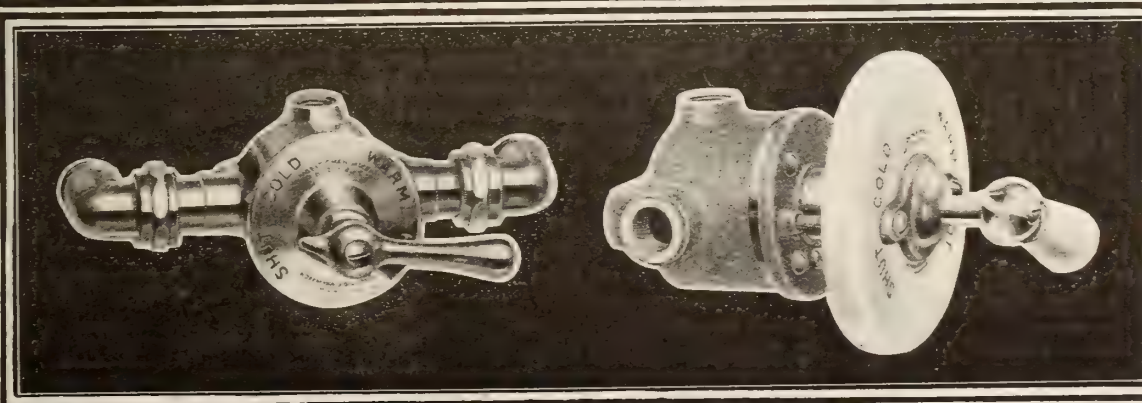
Write for detailed description and prices.

H. MUELLER MFG. CO., LIMITED, SARNIA, ONT.

Water, Plumbing and Gas Brass Goods and Tools.

American Factory at Decatur, Illinois, U. S. A. Branches, New York and San Francisco

Mueller Metals Co., Port Huron, Mich., Makers of "Red Tip" Brass Rod; Brass and Copper Tubing; Forgings and Castings in Brass, Bronze and Aluminum; Die Castings in White Metal and Aluminum; also Screw Machined Products.



MONTREAL MARKETS

(Continued from page 30)

price is increased to 3½ cts. per lb., and boiler plate is 50 cts. per ton more. There is little or no change in the tone of the market, these price changes being announced by local dealers, based on stocks on hand for the most part. Quietness still prevails, although there is a little brighter outlook owing to the improvement in the steel industry. The opening of better weather should also assist in this direction. Following are revised quotations, which are purely nominal, and for large quantities:

SCRAP—

Automobile Tires	0 50
Rubber Shoes	0 02¾
Yellow brass	0 05
Red brass	0 08¼
Light brass	0 03½
Scrap zinc	0 03
Lead, heavy	0 04
Lead, tea	0 02
Light copper	0 08
Heavy copper	0 10
Wrought iron, R. Rd., No. 1 per gr. ton	9 00
Malleable scrap (ton)	8 00
Pipe scrap (ton)	6 55
Heavy melting steel	6 50 to 7 00
No. 2 busheling	3 00
Boiler plate	7 00
No. 1 machinery cast	20 00

STRONGER TONE EVIDENT IN WROUGHT PIPE

Montreal.

List No. 54 remains the selling basis for wrought iron and steel piping. As in many other iron and steel products, wrought pipe is somewhat firmer in tone than it has been for many months past. The open weather has improved the movement considerably, this also assisting toward a stronger situation. Following is list No. 54:

Price List No. 54. December 22, 1921

Standard Buttweld Pipe S/C

Per 100 feet.

Size	Steel Blk.	Steel Galv.	Gen. Wrot. Iron Blk.	Gen. Wrot. Iron Galv.
⅛ in	$ 6 00	$ 8 00	$	$ ....
¼ in	3 84	5 94	7 20	9 30
⅜ in	3 84	5 94	7 20	9 30
½ in	4 85	6 46	7 31	8 93
¾ in	5 87	7 71	8 86	10 70
1 in	8 16	11 05	12 58	15 30
1¼ in.	11 04	14 95	17 02	20 70
1½ in.	13 20	17 88	20 35	24 75
2 in.	17 76	24 05	27 38	33 30
2½ in.	28 08	38 03	.....	.....
3 in.	36 72	49 73	....	....
3½ in.	47 84	63 48	.....	.....
4 in.	56 68	75 21	.....	.....

Standard Lapweld Pipe S/C

Per 100 feet.

Size	Steel Blk.	Steel Galv.	Gen. Wrot. Iron Blk.	Gen. Wrot. Iron Galv.
2 in.	$21 46	$27 38	$31 08	$37 00
2½ in.	31 59	40 95	46 80	56 16
3 in.	41 31	53 55	61 20	73 44
3½ in.	48 76	65 32	72 68	89 24
4 in.	57 77	77 39	86 11	105 73
4½ in.	66 04	86 36	1 04	1 24
5 in.	76 96	100 64	1 21	1 45
6 in.	1 00	1 31	1 57	1 88
7 in.	1 33	1 76	2 02	2 45
8L in.	1 40	1 85	2 18	2 58
8 in.	1 61	2 13	2 45	2 97
9 in.	1 97	2 59	2 97	3 59
10L in.	1 82	2 40	2 75	3 33
10 in.	2 35	3 09	3 54	4 28

IMPROVEMENT IN STEEL MORE PRONOUNCED

Montreal.

The firmer undertone recently displayed in iron and steel products generally is more pronounced this week. Stiffening of prices at primary centres becomes more general, this movement being continually encouraged by necessary increased production. One local distributor stated to Sanitary Engineer that he would not be surprised if a general price revision was quoted within the next few weeks. Apart from the improvement at the mills, consuming demand continues to improve, and sales have increased appreciably. It is now considered that the present healthier state of the market is more than a temporary condition, it is felt that the industry is permanently on the road to recovery. Present prices are the following:

IRON & STEEL—

Common bar iron, 100 lbs.	2 65
Refined iron	4 15
Iron finished machinery steel	2 70
Mild steel	2 65
Single reeled machinery steel	4 75
Band steel	2 65
Spring steel	4 25
Sleighshoe steel	2 65
Tire steel	2 85
Toe calk steel	3 55
Harrow tooth steel	2 80
Mining tooth steel, per lb.	0 21½
Black Diamond tool and cast steel	0 21½

NOTE—Refined iron is approximately $1.50 per 100 lbs. over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs. extra.

SLIGHT SLACKENING IN EAVESTROUGH MOVEMENT

Montreal

While trade in eavestrough and conductor pipe has shown a gradual improvement through recent weeks, a slight slackening in the movement has been noted in the past week or so. This however, is only considered temporary, and dealers anticipate an active season in the following spring and summer months. The firmer tone in galvanized sheets is being watched with interest by manufacturers, and although a stiffening of prices in the sheet market would take some time to reflect on these products, a continuance of strength in sheets, assisted by a more active market would firm the situation considerably for the active season later on. Unchanged prices and discounts are the following:

EAVESTROUGH—

O.G. Round and Half-round, per 100 ft., 8 in., $16.90; 10 in., $18.70; 12 in., $22.20; 15 in., $29.80; 18 in., $37.80.

O.G. Square bead, per 100 ft.: 8 in., $15.90; 10 in., $17.70; 12 in., $21.20; 15 in., $28.80; 6 in., $36.80.

Discount 70|10 per cent.

Conductor Pipe, Round. Plain and Corrugated, per 100 ft.: 2 in., $18.40; 3 in., $23.30; 4 in., $29.60; 5 in., $40.00; 6 in., $49.00.

Discount 70|10 per cent.

CONDUCTOR ELBOWS—

Plain or corrugated, price per doz.

2 in., $5.25; 3 in., $6.00; 4 in., $10.50; 5 in., $24.00; 6 in., $29.00.

Discount 60 per cent.

MORE OPTIMISM WITH BOILER TUBE DEALERS

Montreal

Distributors of iron and steel products also anticipate an improvement in boiler tubes, and are somewhat more optimistic in predicting the future trend in the following months. Tubes have shown a somewhat irregular movement in the earlier months this year, but on the whole only a moderate trade has been in evidence. Quotations are nominally unchanged, and whether the firmer tone in other products will reflect on boiler tubes is at present problematical, but it is pointed out that quotations have generally remained on a higher basis than almost all other lines. Present prices are as follows:

BOILER TUBES—	Seamless	Lapweld
1 inch	24 70	.....
1¼ inch	24 50	.....
1½ inch	24 00	.....
1¾ inch	25 00	.....
2 inch	24 50	20 50
2¼ inch	27 75	23 50
2½ inch	32 50	24 50
3 inch	40 00	30 50
3½ inch	52 50	34 75
4 inch	65 00	44 00

PIPE FITTINGS REMAIN AT FORMER DISCOUNTS

Montreal.

There is little variation in pipe fittings, quotations remaining at former discounts and current business continuing in fair proportions with a slight improvement noted as the season advances. With more activity in construction work to follow, a better movement of pipe fittings is looked for. Following are unchanged prices and discounts:

PIPE FITTINGS—	Per Cent.
Cast iron fittings	30
Bushings, cast	32
Bushings, malleable	32
Flanges	40
Plugs	30
Flange unions	30
Malleable unions	47
Dart unions, black	33
Do., galvanized	13
Nipples, ⅛ to 4" close and short	60
Do., long	65
Do., 4½ to 8" close and short	50
Do., long	55
Couplings, 4" and under	30
Do., 4½" and larger	10

Pound Goods —	Blk.	Galv.
Class A	0 54	0 67
Class B	0 20	0 28
Class C	0 13	0 20

SEASONABLE DEMAND FOR RADIATORS AND BOILERS

Montreal.

Trade in radiators and boilers is described as seasonable by manufacturers and distributors, earlier construction requiring a moderate amount of these products. With quite active building program in the ensuing months, the movement of heating systems should improve considerably, and a satisfactory season is anticipated. Quotations on both radiators and boilers remain at unchanged discounts as follows:

Radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

45 in. to 38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60. Discount, 59% for hot water and 60% for steam.

Wall Radiators—5 ft., $1.15; 6 ft., $1.10; 7 ft., $1.05; 9 ft., $1.05; 12 ft., $1.05. Discount 56%.

Boilers.—Round hot water boilers, low base only (high base discontinued) sizes from 0 to 10, 64 per cent. off list.

Square or sectional hot water or steam boilers, 15-in., 20 per cent.

For Ontario Government trimmings add 5 per cent.

Square or sectional water boilers, 19-in to 36-in. 20 per cent. off list.

Square or sectional steam boilers, 19-in. to 36-in., 20 per cent. Ontario Govt. trimmings, 10 per cent.

Round steam boilers, standard trimmings, 28 per cent. off. Ontario Government trimmings, 25 per cent.

All prices f.o.b. Toronto, Montreal, Guelph, Hamilton, St. Catharines or Brantford.

ACTIVITY CONTINUES IN SHEET MARKETS

Montreal.

Improvement in sheets and the firmer tone at primary centres has advanc-

Continued on page 34

Pipe Fittings

—made with iron of high tensile strength and correct tappings

"You can place the greatest confidence in our malleable fittings; they are made of Air Furnace Refined Iron, reamed and tapped to gauge with perfect threads. Your choice of both screwed and flange fittings, either black or galvanized.

"We are equipped to make the general run of malleable and grey iron castings for machinery manufacturers, agricultural implements, automobiles and specialties."

The few words expressed here only partly tell the story—a trial will prove the quality of service they give in connection with any drainage works.

INTERNATIONAL MALLEABLE IRON COMPANY, LIMITED

GUELPH, ONTARIO

Representatives :

VANCOUVER, B.C.—Messrs. Ames Bros., 325 Howe St.

WINNIPEG, MAN.—Messrs. Harry F. Moulden & Son, Confederation Life Bldg.

Representatives :

ST. JOHN, N.B.—Messrs. H. G. Rogers, Limited, 147 Prince William St.

HALIFAX, N.S.—Mr. Geo. D. Hatfield, Bedford Chambers.

MONTREAL MARKETS

(Continued from Page 32)

ed to the stage where higher prices have appeared in southern markets. The industry in general continues to make satisfactory progress with reports of capacity production in cer ain quarters.

For imported products from England it is reported that this market is also firmer. In the case of English galvanized sheets, the opening of direct navigation to Montreal is expected in the next few weeks, and shipments of fresh supplies will arrive.

With these conditions prevailing in both American and English markets, this example will probably be followed by domestic producers. Following are present quotations

BLACK SHEETS—

10 gauge	4 00	4 50
12 gauge	4 10	4 60
14 gauge	4 40	4 70
16 gauge	4 50	4 80
18-20 gauge	4 55	5 05
26-gauge	4 60	5 20
22-24 gauge	4 65	5 25
[illegible]	4 75	5 35

GALVANIZED SHEETS—

10¾ ounce	6 65	7 10
28 gauge	6 25	6 70
26 gauge	5 95	6 35
22-24 gauge	5 80	6 10
20 gauge	5 65	5 95
18 gauge	5 65	5 85
16 gauge	5 50	5 80
14 [illegible]	5 35	5 75
12 gauge	5 20	5 75
10 gauge	5 10	5 75

English Standard	Queen's Head.	Fleur-de-lis
28 gauge	7 00	6 75
26 gauge	6 75	6 50
24 gauge	6 15	6 10
22 gauge	5 80	5 65
18-20 gauge	5 10	5 50

NOTE—These prices are for full bundles: an extra charge of 25c to 35c per 100 lbs. is made for broken lots. Extra for sheets 4 ft. wide, 50 cents per 100 pounds. Extra for sheets 3 ft. wide, 28 ga. and 10¾ oz. 25 cents per 100 lbs.

CANADA PLATES—

Dull.

18 x 24 x 52s	5 60
18 x 24 x 60s	5 80
18 x 24 x 75s	6 10

WELSH CANADA PLATES—

Polished.

18 x 24 x 52s	7 75
18 x 24 x 60s	8 00

BRIGHT TIN PLATES—

28 x 28 x 100 lbs., bases	15 50
20 x 28 IC., 112s	16 00
20 x 28 IX., 112s	18 00
20 x 28 IXX, 56s	10 25
20 x 28 IXXX, 56s	11 00

TERNE PLATES—

20 x 28 IC. 112s	15 00

ONLY MODERATE TRADE IN RANGE BOILERS

Montreal

Although the current trade in range boilers is somewhat improved over the past quiet weeks, there is said to be room for much improvement. Buying continues for small quantities only, and notwithstanding reports of contemplated building in the following months showing that boilers, as well as other products used in construction work, will be in better demand, dealers are apparently willing to take care of immediate requirements only. The condition of the local market shows little change, and both the newer list prices with discount, and older net prices are quoted. Following are list prices and prevailing discounts;

RANGE BOILERS:—

5	Gallon	$13.50
12	"	14.00
18	"	15.00
25	"	16.00
30	"	17.50
35	"	20.50
40	"	22.75
52	"	38.00
66	"	60.75
82	"	74.00
100	"	103.00
120	"	117.00
144	"	164.00
168	"	187.00
192	"	210.00

Discounts, Standard weight, 50 per cent.
Extra Heavy, 40 per cent.

ACTIVE MOVEMENT OF SOIL PIPE AND FITTINGS

Montreal

The movement of soil pipe is described by local distributors as gradually improving as the season advances. With reports of a fairly active building program during the remaining spring and summer months, continued activity is looked for in this product. Quotations on both pipe and fittings remain unchanged, and while certain dealers predicted some weeks ago that increased business after the winter season might have a tendency to stiffen prices, this has not yet developed. Local prices are considered comparatively low, especially with levels existing in other western domestic markets, but on the other hand, competition in this respect must be met. Prevailing discounts are as follows:

SOIL PIPE—

2 and 3 inch	47½%
4 inch	50%
5 and 6 inch	47½%

Fittings—

2 to 6 inch	50-10%

BUILDING PROGRESS REFLECTS ON ENAMELED WARE

Montreal.

Present demand for enameled ware is somewhat improved, and a satisfactory increase in sales is noted so far this month over March. As the season advances, building construction calls for supplies, and a fairly active season is anticipated. Encouragement is lent through the amount of dwelling house construction planned for during the summer months. Prices remain nominally unchanged at 33-1/3 per cent. off list prices.

Sinks, roll rim—			
18 x 30			$23 00
Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$ 7 50	$ 7 40	$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide			51 40
Bath tubs, 5½ feet			57 10
Lavatories—			
17x19 in. Apron F139 or P4045			15 30
18x24 in. Apron F154 or P3845 or P3847			23 60
18x21 in. Apron F169 or P4205			17 60
17x19 in. Roll rim, F241 or P4345			12 60

Less 33 1-3 per cent.

STEADY PRICE LEVELS ON COTTON WASTES

Montreal.

With current business in cotton wastes reported as fairly good, there is little or no change in the undertone of the market. Raw cotton markets are somewhat steadier than in the earlier part of the year, and waste dealers anticipate little further change during the coming weeks. Prices remain unchanged at the following levels:

COTTON WASTE—Cream polishing, 18c. per lb. White—XXX extra, 16c.; XX grand, 15c. XLCR, 14c.; X Empire, 13c.; X press, 11½c.

Colored—Fancy, 13½c; Lion, 12c; Popular, 9c; Keen, 7½c.

Wool Packing—Arrow, 25c; Axle, 22c; Anvil, 18c.

Dominion Wipers—White cotton, 20c; colored cotton, 14c.

IMPROVED ACTIVITY IN CLOSET OUTFITS

Montreal

A slightly improved buying movement is recorded in closet combinations, although according to local distributors, there is still room for increased trade. Construction work is progressing in an encouraging way, and buildings commenced around the present time will not require such lines as closet outfits until a later date, but this offers encouragement to dealers for business during the later months. Current quotations are nominally unchanged as follows:

CLOSET OUTFITS—

Closet, standard outfit	27 50
Do., with post hinge seat	28 50
Do., white vitro, vitreous china, or enamel-enameled iron, with wash-down bowl and oak or mahogany post hinge seat	30 50
Do., reversible trap bowl, less spud	11 50
Do., add for siphon jet bowl	7 00
Do., for ⅜ in. valve on supply pipe	1 50
Deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	10 50
Do., reversible trap bowl, less spud	12 75
Do., siphon jet bowl, less spud	10 00
Do., Richelieu bowl	9 00
Do., extra for spud	0 60
Do., oak, or oak-vitro tank, with fittings, less seat	14 25
Do., wood strip seat and cover	3 55
Do., post hinge seat and cover	4 25
Do., add for bar hinge	No extra
Do., white vitro, vitreous china or eled iron tank, with fittings, flush elbow and supplies less seat	18 50

LITTLE BETTER TONE IN INGOT METALS

Montreal.

The slightly better tone in the ingot metal markets, continues, and several lines have shown a certain amount of firmness. It cannot be said that this has been followed by any great volume of buying locally, but the improvement shows signs of greater confidence.

TIN.—This metal showed a sharp advance in the early part of the week, but it is considered doubtful whether the improvement will hold. The local market, however, is firm and stocks are rather light pending further arrivals upon the opening of navigation. The market locally is firm at 35½ cents.

COPPER.—Copper is strong both in London and New York, without any marked change in the situation. It is not likely that the situation will change materially until stocks are lessened. Locally the market is quiet at 16¾ cents for electro and 16½ cents for casting.

SPELTER.—This metal has been quite strong at East St. Louis. Locally spelter is firmer in sympathy at 7½ cents.

ALUMINUM.—This metal fails to make any impression either on the local or outside markets. Quotations remain unchanged at 24 cents.

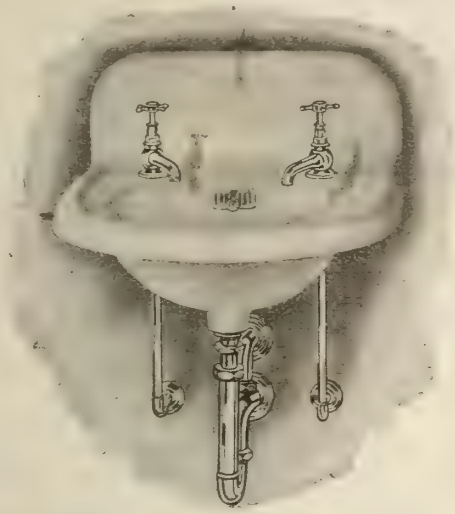
LEAD.—This is the strongest metal on the list, and the price in the south

(Continued on Page 36)

BEAVER BRAND
Porcelain Enamel Ware

The beauty and attractiveness that lead to the Beaver Brand popularity are attained by methods of manufacture that add materially at the same time to the durability and finish of this handsome ware.

"Shamrock" Porcelain Enameled Bath



One Piece Porcelain Enamel Lavatory

The "Beaver" Porcelain Enameled, One-Piece Lavatory is illustrated to the left. It has D-shaped basin, patent overflow and shell soap dish on concealed brackets. Complete with N.P. overflow strainer, chain stay, plug and stopper. "Beaver" Porcelain Enameled Bath, with 1½ inch roll rim, for Fuller double bath cock, connected waste and overflow, painted exterior. We will be glad to supply dimensions and prices on application.

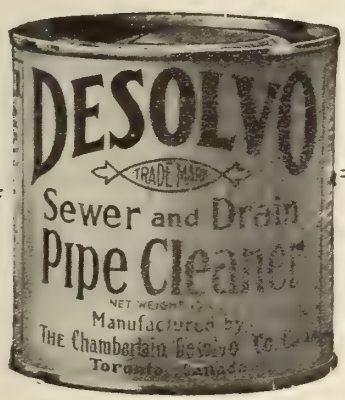
Amherst Foundry Co., Limited

General Offices and Factory : Amherst, N.S.

Agents :

Ontario:
Monarch Brass Mfg. Co.,
71 Brown St., Toronto

Manitoba and Northwest:
E. B. Plewes,
197 Princess St., Winnipeg



Clears Clogged or Frozen Pipe

Supplies a Real Need

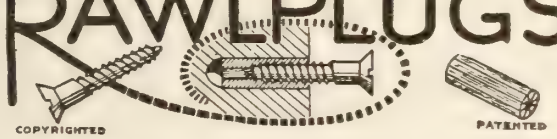
Show Desolvo in your window with a conspicuous card explaining, in very few words of large, easily read type, what it does for consumers. You will be agreeably surprised with the resulting sales.

It is easy to sell when you explain the saving in trouble and expense of tearing up floors, woodwork or lawns. The main thing is to let customers know what it does and that you have it for sale.

The Chamberlain Desolvo Co., Limited
109 Church St., Toronto

Eastern Canada Representative: Richardson & Bureau, 55 St. Francis Xavier St., Montreal
Ontario Representative: L. F. Mayne, 875 Trafalgar St., London, Ont.
Western Canada Representative: N. D. McPhail & Co., Standard Bank Bldg., Vancouver, B.C.
408 Donalda Block, Winnipeg.

RAWLPLUGS



---holding power is remarkable

Plumbers and steamfitters desiring to accomplish the best possible work at a minimum cost for fastening any equipment to any material should always use

RAWLPLUGS

—they mean added profits.
—they save time, money and labour.

Samples and price list upon request

INVENTIONS LIMITED
—Sole Agents for—

THE RAWLPLUG CO. OF CANADA
128 Bleury Street, Montreal

The Rawlplug Co., 461 8th Ave., New York

MONTREAL MARKETS

(Continued from Page 34)

has advanced about ½ cent per lb. during the past few weeks. The London market is also very firm. The local trend is now based on English lead, and with navigation soon opening direct to Montreal, the price is nautrally influenced accordingly. Local quotations firmer at 7 cents.

ANTIMONY.—There is no particular change in the price of antimony, but the market is steady with a little more activity. Local prices are unchanged at 6½ cents for Chinese and 7½ for high grade English.

TORONTO MARKETS

TORONTO, April 13—The price tendency in the sanitary and heating markets is still in a downward direction, several reductions again having been announced. One of the feature changes is noted on lead pipe and waste, a decline of fifty cents being recorded in the list prices, while traps and bends are also lowered through revised discounts. Other products on easier price levels include, certain brands of welding compound, and practically all styles of hammers. The recent stiffening of prices in the steel industry has resulted in a firmer market tone appearing on many finished products, such as wrought piping, sheets and plates, corrugated iron, eavestrough and conductor pipe. There is generally reported a brisk demand for bathroom fixtures, with enameled ware experiencing a better call, chiefly through the activity now apparent in seasonal construction work. While moderate reports still govern many plumbing and steam-fitting supplies, improvement is generally looked for during the ensuing months.

REDUCTIONS ON NICKEL PLATED BATH SUPPLIES

Toronto.

Some revisions have been announced on iron pipe nickel-plated bath supplies, the ⅜ inch now being quoted at $1.80 per pair, and the ½ inch size at $2.00 per pair.

LOWER QUOTATIONS ON WELDING COMPOUND

Toronto

Quotations on welding compound have been reduced, these changes affecting certain makes.

ANOTHER DECLINE IN HAMMER PRICES

Toronto.

Another downward revision in prices on nail hammers and machinists hammers has been announced by the manufacturers of these products. The extent of the decline is 12½ per cent., and the same reduction is noted on other handled hammers including carpenters', farriers', tinners', rivetters' and blacksmiths' hammers.

HIGHER PRICES APPEAR ON WOOD SCREWS

Toronto.

An advance has been announced in quotations on wood screws. The discounts have been revised all through the list, the change resulting in an increase of approximately ten per cent.

BRISK DEMAND FOR BATHROOM FIXTURES

Toronto

Wholesalers report that the large number of new homes being erected has created a better demand for bathroom fixtures of various kinds. One merchant stated to Sanitary Engineer that the volume offering in this direction is very pleasing, as well as providing leads for the sale of other seasonal needs. Some minor price adjustments have recently been made in some of these products, and dealers therefore look for a brisk movement during the current season.

REDUCED PRICES ON LEAD PIPE AND TRAPS

Toronto.

A downward revision has been announced in quotations on lead pipe, lead waste pipe and lead traps and bends. The list price on lead pipe is lowered one half cent per lb., with a similar reduction on waste. The discount on traps and bends is revised to 17½ per cent., where formerly this was quoted at ten per cent. These changes place lead products on a general lower basis in anticipation for an improved demand during the ensuing spring and summer months. The price levels on solder and zinc sheets remain at the recent revisions. It is noted, however, that zinc sheets have been quoted at a slight recession in southern primary markets, but quotations on the domestic centres remain unchanged, and are generally at the following levels:

LEAD AND ZINC GOODS—		
Lead pipe, list, per lb.		0 12
Lead, waste pipe, list, per lb.		0 13
Do., over 8 in., list, per lb.		0 14
Lead pipe is subject to a discount of 10 per cent.		
Lead traps and bends		17½ per cent.
Lead sheets, 4 to 6lbs., sq. ft. in rolls, lb.		0.09
Cut sheets, ½c to ¾c lb. extra and cut sheets to size, 1c lb. extra.		
Solder wire, per lb.		0 30
Do., commercial, lb.		0 22½
Do., strictly, lb.		0 21
Do., guaranteed, lb.		0 24
Do., wiping, lb.		0 21
Zinc sheets, per lb.	0 09	0 10

BETTER DEMAND FOR ENAMELED PRODUCTS

Toronto.

The outlook for the present season as regards enameled ware is described as encouraging. The volume of business is confidently expected to regis er a marked increase over that of last season, according to expressions from manufacturing circles. The prevailing demand records some improvement, this also being attributed to construction activity. The proportion of dwelling houses being erected, reflects a comparative call for these products. Following are current prices and discounts:

ENAMELLED WARE—			
Enamelled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.			**51 40**
Do., 5½ ft.			**57 10**
Lavatories—			
17x10" Apron F139 or P4045			**15 80**
18x24" Apron F154 or P3845 or P3847			**23 60**
18x21" Apron F169 or P4205			**17 60**
18 x 21" Roll Rim, F197, F199 or P4655-6			**15 40**
17 x 19" Roll Rim, F241 or P4345			**12 60**
Sinks, Roll Rim, 16x24 in.			**18 10**
Do., 18 x 30 in.			**23 00**
Do., 20 x 30 in.			**24 70**
Sinks, Flat Rim—	**3 only**	**2 only**	**1 only**
16 x 24	**$7 60**	**$7 70**	**$7 80**
18 x 30	**8 50**	**8 60**	**8 70**
20 x 30	**9 70**	**9 80**	**9 90**
Above prices list, less 33 1-3 per cent.			
All steel enamel baths, 4 and 4½ ft.			**$14 00**
Do., 5 ft.			**15 00**
Do., 5½ ft.			**16 75**
These quotations are net.			

SEASONAL ACTIVITY IN RADIATORS AND BOILERS

Toronto

A seasonal volume of trade is recorded in radiators and boilers, earlier construction requiring a fair amount of these products. Compared with last season, the prevailing movement is described as giving much satisfaction, although heating systems in the smaller type of dwellings now being erected, are not extensive. Discounts on these goods re main at the revision effective at the commencement of the year. Prevailing quotations follow:

RADIATORS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60.

Discount on 2, 3, 4 and 5-column standard sizes, 59 per cent. for water and 60 per cent. for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 51 per cent. for water and 52 per cent. for steam.

Discounts on 1-column hospital size, water 33 per cent.; steam 34 per cent.

Wall radiators—5 ft. $1.15; 6 ft. $1.10; 7 ft. $1.05; 9 ft., $1.05; 12 ft., $1.05. Discount 56 per cent.

WROUGHT PIPE SHOWS GAIN IN STRENGTH

Toronto.

A stronger tone is now evident in wrought piping, this tendency being a reflection of the stiffening in quotations on steel products generally. The demand for steel pipe has also increased slightly, both on the domestic and primary markets. Prices in the south are described as firm, and this tendency is more or less expected to spread, based upon recent developments in basic materials. For the present, List No. 54, continues to govern domestic quotations.

GRADUAL IMPROVEMENT RECORDED IN TROUGH

Toronto.

The current movement in eavestrough is considered fair, with brisker trade generally looked for during the follow-

(Continued on Page 38)

A Million Dollars

Spring Breezes and Spring—Air—Sunshine—Green Grass—Flowers—Building Booming—Business picking up all around—Oh Boy! Who wouldn't feel like a million dollars?

Just about now you'll be needing some of the things we sell:

Cone top tank bulbs,
Bibb washers,
Fuller repairs,
Ball cock repairs,
Syphon valve washers,
Bibb screws and nuts,
Sink, bath and basin gaskets,
Boiler repair plugs,
Reseaters and reamers,
Cutter wheels and tool repairs of all kinds,
Furnace repairs,
Wrenches,
Pipe cutters,
Vises,
Shell drills,
Hack saws and blades,
Flexible pipe hangers,
Closet bolts and screws,
Spud wrenches,
Bending springs,
Bumpers,
Stoppers,
Rubber and fibre union washers,
Anti-splashers,
Floor and ceiling plates.

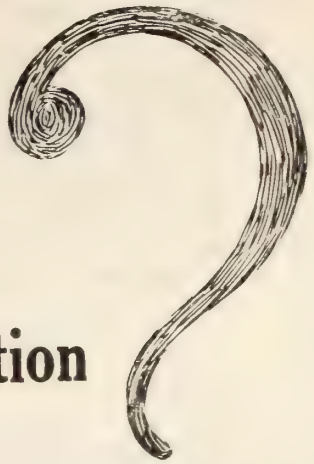
And while you're sorting up, how about: **"Hercules" drain pipe solvent, "Sanilav" closet cleaner, "Porcela" enamel cleaner, C. & H. pipe joint cement, "Hotstream" gas and kerosene water heaters, "Lion" quick action tank couplings, "Ubel" semi-rotary (wing) pumps.** Well, there are a hundred and one other things that we have that you need.

And C. & H. Specialties are guaranteed to give satisfaction—Send us your next order.

W. H. Cunningham & Hill Ltd.

269 West Richmond St., Toronto

Handling Steam Condensation



When you find a gravity return heating system—with one section sluggish in action and no circulation, what do you do to correct it?

How do you balance up unequal return pressures?

If you have to drain a heating section which is below the boiler, how do you do it?

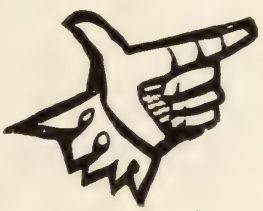
If your lines are "air-bound" how do you relieve them?

If you find the heating returns running to waste—does it pay to catch them and return them to the boiler?

Have you ever removed "dumping" traps because they wouldn't dump?

Have you ever seen a "return trap" which would not return?

Have you ever got into trouble through installing a troublesome return trap?



We have eliminated the "dumping return trap" with its failures and troubles.

We show you how to avoid trouble when you want to put in a direct return system.

You get all the advantages of a direct return system without a possibility of failure or a chance of trouble when you use our condensation appliances.

Ask us for particulars. Condensation is our strong point.

Canadian Combustion Company
Limited
Engineers and Manufacturers
43 Victoria St. Toronto

TORONTO MARKETS

(Continued from page 36)

ing months. The stiffening of prices on primary steel markets, has resulted in a slightly firmer undertone in these products also. As is the case with materials required in construction work, seasonal activity in this respect is generally looked for. Quotations at present remain at the following levels:

TROUGH (EAVE)—

O. G. Square Bead and half round. Size in girth: Per 100 ft.

8 in.	15 90
10 in.	17 70
12 in.	21 20
15 in.	28 80
18 in.	36 50

Less 70 and 10 per cent.

PIPE (CONDUCTOR)—

Plain, round or corrugated.

	Per 100 ft. in 10 ft. lengths.
2 in., in 10 ft. lengths, list	18 40
3 in., in 10 ft. lengths, list	22 30
4 in., in 10 ft. lengths, list	29 60
5 in., in 10 ft. lengths, list	40 00
6 in., in 10 ft. lengths	49 00

Less 70-10 per cent.

ELBOWS (CONDUCTOR)—

2 inch, list	5 25
3 inch, list	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00

Less 60 per cent.

BETTER MOVEMENT IN FITTINGS TRADE

Toronto.

Distributors state that business in pipe fittings is coming along in fair proportion for this time of the year, with a gradual improvement having been recorded as the season advances. Building activity is expected to reflect an increase in this movement during the ensuing months. Little variation has been recorded in quotations, discounts and prices remaining at the recently revised levels, which follow:

PIPE FITTINGS—	Per cent.
Cast iron fittings	30
Plugs, cast iron	30
Do., solid	30
Do., countersink	30
Bushings, malle.	32
Do., cast	32
Unions, ¼ in. to 2 in.	47
Do., ⅜ in., 2¼ to 4 in.	47
Flanged unions, std.	30
Flanged fittings	30
Dart unions, blk., ¼ to 2 in.	33½
Do., ⅛ in., 2¼ to 4 in.	23
Do., galvd., add to black	30
Nipples, blk., and galvd. ⅛ to 4 in. close and short	60
Do., 4½ in. and larger	50
Do., ⅛ in. to 4 in.	65
Do., 4½ in. and larger	55
Do., running thread	40
Couplings, 4 in. and under	30
Do., 4½ in. and larger	10

MALLEABLE FITTINGS—

Class A	0 54	0 67
Class B	0 20	0 28
Class C	0 13	0 20

FIRMER UNDERTONE IN CORRUGATED PRICES

Toronto

A somewhat firmer tone is recently evident in the corrugated sheet market, this development being attributed to the improvement noted among flat galvanized sheets. The stiffening of prices on steel products generally, has been a factor calculated to produce a firmer undertone in corrugated. Both manufacturers and distributors report better activity, especially in the lighter gauges, while quotations remain unchanged at the following nominal list prices and discounts, with some special concessions reported offered on certain heavier sizes:

CORRUGATED SHEETS—	Per 100 Sq. Ft.
No. 28 gauge	$6 50
No. 26 gauge	7 00
No. 26, U. S. gauge	8 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50

Less 10 per cent.

Lighter than 24 gauge and wider than 27 inches, 75c. per square extra.

TRADE STILL QUIET IN RANGE BOILERS

Toronto.

A moderate degree of trade is recorded in range boilers, with buying in somewhat meagre quantities for immediate requirements only, being the policy generally adhered to by purchasers. A better demand for these products is hoped for, especially with the apparent activity in construction work. The following list prices and discounts are generally in effect although the previous net quotations are reported in certain quarters:

RANGE BOILERS

Size.	List Price.
5-gallon	$13 50
12 to 15 gallon	14 00
18-gallon	15 00
25-gallon	16 50
30-gallon	17 50
35-gallon	20 50
40-gallon	22 75
52-gallon	38 00
66-gallon	60 75
82-gallon	74 00
100-gallon	103 00
120-gallon	117 00
144-gallon	164 00
168-gallon	187 00
192-gallon	210 00

Discounts, Standard weight, 50 per cent.
Extra heavy, 40 per cent.

UNCHANGED DISCOUNTS ON COMPRESSION GOODS

Toronto

Little variation has been recorded on compression goods since the recently revised discounts on certain lines went into effect. The current movement of these products is generally described as fair, with plenty of room for improvement. The feeling is evident that more activity should be noted during the ensuing months, as these lines are expected to reflect to a certain extent the general increase in building. Following are prevailing discounts:

VALVES—

	Per cent.
Compression work, standard	45
Fuller work, standard	30
Bath cocks, compression	38
Do., Fuller	25
Flatway stop and wastecocks, stand'd.	54
Roundway stop and waste cocks, std.	46
Brass steam cocks, standard	43
Globe, angle and check valves, std.	25
Mueller globe, angle and check	25
Mueller composition disc steam valves	33
J. M. T. valves, screwed	20|10
J. M. T. gate valves, screwed	25|10
J. M. T. gate valves, screwed	25|10
Jenkins gate or straightway, screwed	25|10
Jenkins globe, screwed	19|10
Radiator valves, standard	58
Do., removable disc	58
Emco, J. D., rad. valves, screwed	33
Emco swing check, ⅜" and ½"	40
Do., Do., other sizes	33
Webber gate valves, screwed	33
Emco globe valves, std.	25
Emco globe valves, J.D., screwed	33

Basin cocks—

No. 0 and 1 Fuller pattern	30
Quick opening No. 3633	50
No. 3623, plain or index handle	34

BOILER TUBE PRICES STILL NOMINAL

Toronto.

Distributors state that although current business is coming along in fairly satisfactory volume for this time of the year, yet the boiler tube market has not attained the stabilization hoped for. Prices are still entirely nominal, being made according to the individual order and on the length and sizes required. Each specification is generally being treated on its merits, and local dealers claim that competition from various outside points, has kept quotations in a more or less unsettled condition. Following is an average list representing approximate levels in effect locally:

BOILER TUBES—

	Seamless	Lapweld
1 inch	21 00	.....
1-¼ inch	21 50	.....
1-½ inch	22 00	.....
1-¾ inch	23 00	.....
2 inch	22 00	17 00
2-¼ inch	26 00	18 00
2-½ inch	30 00	20 00
3 inch	34 00	25 00
3-¼ inch	43 00	27 00
	47 00	28 00
3-½ inch	47 00	28 00
4 inch	58 00	35 50

PRICE SHADING ALMOST GONE FROM BAR STEEL

Toronto.

The firmer situation recently noted in bar and steel products generally, has now reached the stage where some price stiffening has developed into higher quotation levels at certain primary quarters. Whether this condition will be reflected in the domestic markets is uncertain, as yet, but one distributor stated to Sanitary Engineer that providing these southern quotations become generally adopted by producers, the upward trend may then be noted on the local market in the near future.

Price shading is practically gone from the domestic centres, and every week records a slightly increased demand. This condition is of course, expected at this season, while building and general construction work is on the increase. Prices remain unchanged at the following levels:

IRON AND STEEL

Mild steel bars, base	2 75
Mild steel bands, 3 16 in. base	3 25
Bar iron, base	2 75
Angle iron, base	2 85
Horseshoe iron	3 60
Tire steel	3 00
Spring steel	6 00
Crucible cast sheet steel	30 00
Mining drill steel	18 50
Cast tool steel, medium	18 00
Cast tool steel, high grade	31 00
Sleigh shoe steel	2 85
Norway iron	12 50
Toe caulk iron	4 00
Hoop steel	3 75

MAY BE TURNING POINT IN SHEET MARKETS

Toronto.

While the recent increased price levels on galvanized sheets, announced by certain independent mills in the south, still remains the principal factor in the sheet industry, this condition is ascribed as the possible turning point for steel producers. It is pointed out in one quarter that such a situation is made possible by the termination of contracts for sheets, and the trend to advanced levels on fresh bookings. Whether this

(Continued on page 40)

Allpriser—
Your Price Clerk

Write for further information

K. B. ALLISON

4 Irwin Ave. - Toronto, Ont.

WOLVERINE LIMITED

76 Nelson St. Toronto—

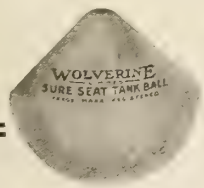
Wolverine "Sure Seat" Tank Balls are Reliable

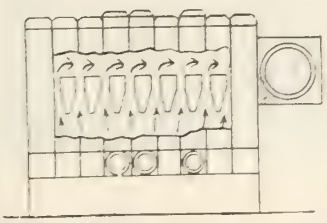
Made from pure gum rubber and absolutely guaranteed.

Designed to fill the long felt want for casting service durability.

Our business is quality specialties for plumbers and steamfitters.

Mail us your specifications for your requirements. We give special attention to mail orders and can ship promptly. Good work can be produced and your customers satisfied with Wolverine Products.





One Flue Opening or Many?

Many sectional boilers, you know, are made with one flue opening at the **rear** of the fire box. This draws the fire to the rear, leaving the front sections but partially effective.

In Burnham Boilers the flue openings are between **each** section, so that an equal amount of heat continually reaches each section.

Write for complete information.

Lord & Burnham Co. Limited of Canada

(Boiler Department)

Harbor Com. Bldg., Toronto.

Burnham Cosy Comfort Heat BB

Factory—St. Catharines, Ontario.

PLUMBERS WHO USE OUR

TESTED Soil Pipe

SAY IT SAVES TROUBLE

Manufactured by

FORWELL FOUNDRY, LTD.

KITCHENER, ONT.

TORONTO MARKETS

(Continued from page 38)

lead will be generally followed by American mills remains to be seen, but it recalls the fact that prices are at least stiffening at the prevailing levels. All the barometers by which the steel industry in general is gauged now reveal a generally improved condition, while the sheet business during the closing days of March, recorded a momentum for the opening of the second quarter to emulate. A more satisfactory tone is evident, as the progress looked for earlier in the year, is now developing. Following are current prices

BLUE ANNEALED—		
10 gauge, base	3 50	4 25
12 gauge	3 55	4 30
14 gauge	3 60	4 35
16 gauge	3 65	4 40
BLACK—		
18-20 gauge	4 05	4 80
22-24 gauge	4 10	4 85
26 gauge	4 15	4 90
28 gauge	4 25	5 00

Charge of 25c. per 100 lbs., is made for less than case lots. An extra 10c per 100 lbs. is also charged on sheets 26 in. wide.

GALVANIZED—	Queen's Head.	Fleur-de-lis.
28 gauge	7 50	7 00
26 gauge	7 25	6 75
24 gauge	6 85	6 35
22 gauge	6 40	5 90
18 and 20 gauge	6 25	5 75
Premier and Apollo—		
10¾ oz.	5 75	6 50
U. S. 28, base	5 35	6 10
U. S. 26	5 05	5 80
22 and 24	4 90	5 65
18 and 20	4 75	5 50
16	4 60	5 35
12 and 14	4 45	5 20

An extra is now charged on galvanized sheets, 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20 cents per 100 pounds. Other gauges show no change for different widths.

An extra 40 cents per 100 lbs., is charged for Keystone and Premier brands copper-bearing

BUILDING REFLECTED IN CLOSET DEMAND

Toronto

Closet outfits, combinations and fixtures also come in the category of trose building supplies which register an improved demand at this season. The increase in this respect is generally looked for to continue as the season progresses. Prevailing quotations are nominally unchanged, with the following levels generally governing small purchases, but with some slight concessions being recorded for half-dozen lots or

CLOSET COMBINATIONS, low down	each
Closet, standard outfit, oak	27 75
Do., with post hinge seat	28 40
[illegible] mahogany post hinge seat and cover	30 25
[illegible] with oak post hinge seat and cover	30 75
[illegible] with mahogany post hinge seat and cover	31 00
Do., white Vitro or Pussyfoot, with mahogany post hinge seat and cover	30 75
Do., white Vitro or Pussyfot, with mahogany post hinge seat and cover	31 00
Do., enamelled iron tank with oak post hinge seat and cover	30 75
[illegible] with mahogany post hinge seat and cover	31 00
Additions or reductions to above	
Add for reverse trap bowl	1 25
Add for syphon jet bowl	7 00
For ¾ in. valve on supply pipe	1 50
Deduct for supply pipe	0 70
Deduct for floor flange and bolts	0 80
CLOSET BOWLS—	
Washdown bowl, less spud	10 00
Reversible trap bowl, less spud	11 25
Syphon jet bowl, less spud	17 00
"Richelieu" bowl	10 50
CLOSET TANKS, low down	
Oak, Vitro or Pussyfoot tank with fittings, less seat	13 10
White Vitro or Pussyfoot tank with fittings, flush elbow and supply	15 25
Vitreous china tank with fittings, flush elbow and supply	18 00
Enamelled iron tank with fittings, flush elbow and supply	18 00
CLOSET SEATS—	
Oak post hinge seat and cover	4 00
Oak wood strip seat and cover	3 25
Mahogany finish post hinge seat and cover	4 25

COPPER AGAIN WEAKENS ON PRODUCTION NOTICE

Toronto.

The weakening of copper is the feature of the current ingot markets, this situation having developed upon the announcement of certain producers to resume operations. The current demand for metals in general continues quiet, and the present situation shows little variation. Some metals, such as antimony and lead, are slightly firmer, the improvement, however slight, being a welcome spot in a sea of general depression.

COPPER.—Another recession has occurred in the primary copper markets both as regards interest and prices. This condition has been accentuated by the announcement of copper producers deciding to resume operations, this having an unsettling effect. The demand continues light, and recent offerings are freer, with dullness and weakness the principal noticeable factors on both the primary and domestic markets. Local quotations remain at 16½ cents.

TIN.—Confidence in this market has not increased to any appreciable extent, but prices on the primary centres are described as steady. Stocks are still ample however, and increasing supplies have tended to keep business quiet. The price of 34 cents continues to be the average local quotation.

WINNIPEG MARKETS

WINNIPEG, April 13—Current price developments in sanitary and heating materials include lower quotations on sheet copper, Canada plates, and wrought nipples. The reduction in nipples is recorded through revised discounts, but no similar change has been announced on couplings or wrought piping. Other plumbing and steam-fitting markets have remained fairly steady in price, with the recent seasonable weather conditions contributing towards improvement, not only in the prevailing volume of business, but also in regard to the prospects for future trade activity.

REVISED DISCOUNTS ON WROUGHT NIPPLES

Winnipeg.

Through a change made in discounts on wrought iron nipples, the net prices are now on a lower scale. Following are the revised discounts:

NIPPLES—

Close and short—Up to 4 in., 50 and 10 per cent. off.; 4½ in. and larger, 40 and 10 per cent off.

Long—4 in., and smaller, 55 and 10 per cent. off.; 4½ in. and larger, 45 and 10 per cent. off.

EASIER PRICES APPEAR ON SHEET COPPER

Winnipeg.

Prices have dropped recently on sheet copper. This is not surprising as the virgin metal has been slightly easier in tone. Following are the revised prices:

Planished Copper 56c. per lb.

Tinned copper 50c. per lb .

LOWER PRICES NOTED ON CANADIAN PLATE

Winnipeg.

Small reductions continue to feature the local sheet markets, and a slight reduction is now recorded on Canada Plates. Following are the revised quotations:

CANADA PLATE—

18x21, $6.75 per box.; 18x24, $6.75 per box.; 20x28, $6.75 per box.

FAIR TRADE RECORDED IN COTTON WASTE

Winnipeg.

There is no change in the cotton waste market, raw cotton now being fairly steady, following the decline some weeks ago. Trade is fair in volume for this season, and prices remain at the last revision.

WASTE, COTTON—

Cream polishing, 22c. per lb. White XXX Extra 18½c. per lb.; XX Grand 17½ per lb.; XLCR, 16½c.; X Empire 15c.; X Press, 14½c.

Colored—Fancy 15½c.; Lion 14c.; Standard 12½c.; Popular J 11c.; Keen 9½c. per lb.

SATISFACTORY DEMAND FOR RANGE BOILERS

Winnipeg.

The range boiler situation is practically unchanged, with the current demand described as being fair. Compared with this time last year business in this line is very satisfactory. Prices are unchanged. Following are the prevailing quotations:

RANGE BOILERS—

30 gal. $9.60 ea.; 35 gal. $13.25 ea.; 40 gal. $16.25 ea.; 52 gal. $23.45; 66 gal., $33.15; 82 gal. $40.60; 100 gal. $62.50 ea.; 120 gal., $75.00.

BUILDING ACTIVITY PROVIDES BETTER SOIL PIPE TRADE

Winnipeg.

Sales of soil pipe have been exceptionally light up to this time, but as the weather is now getting more suitable, coupled with the promise of an extensive building program, it is expected that trade in this line will be good. For the present there is no price change to record. Following are the prevailing discounts:

SOIL PIPE—

2 and 3 in., 20 per cent. off; 4 inches, 30 per cent. off.; 5 and 6 inches 25 per cent off.; 8 inches 10 per cent adv.

Fittings—2 and 3 inches, 40 per cent. off; 4, 5 and 6 in., 45 per cent.

No Need for Wet Cellars!

Just now there are splendid opportunities for you in selling the **Morrison Automatic Cellar Drainer.** This is the season when you can, by featuring this line, make a distinct appeal to your customers that will mean good business for you.

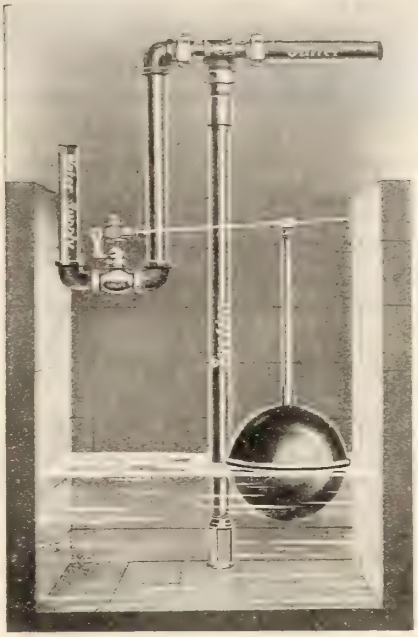
A wet cellar is a detriment to health. It is a detriment to business for wet cellars or basements are very destructive to stock.

Have you a **Morrison Cellar Drainer** in your own cellar?

It is easily installed, entirely automatic, and cannot get out of order. Will keep a cellar dry the year round.

It will pay you to investigate the sure and perfect working qualities of the **Morrison Automatic Cellar Drainer** either for your own or your customers' use.

Dealers are right now making splendid profits selling them. Write for complete information.



The James Morrison Brass Mfg. Co., Ltd.
93-97 Adelaide St. W., Toronto, Ont.

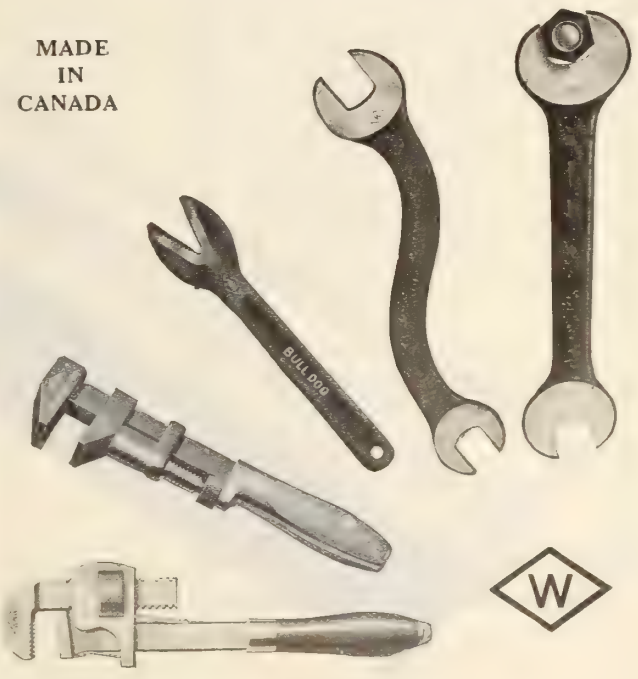
THE TRADE
Is Respectfully Cautioned
to specify

RIVETED RANGE BOILERS

Made by the old reliable

TORONTO HARDWARE MFG. CO., LIMITED

MADE IN CANADA

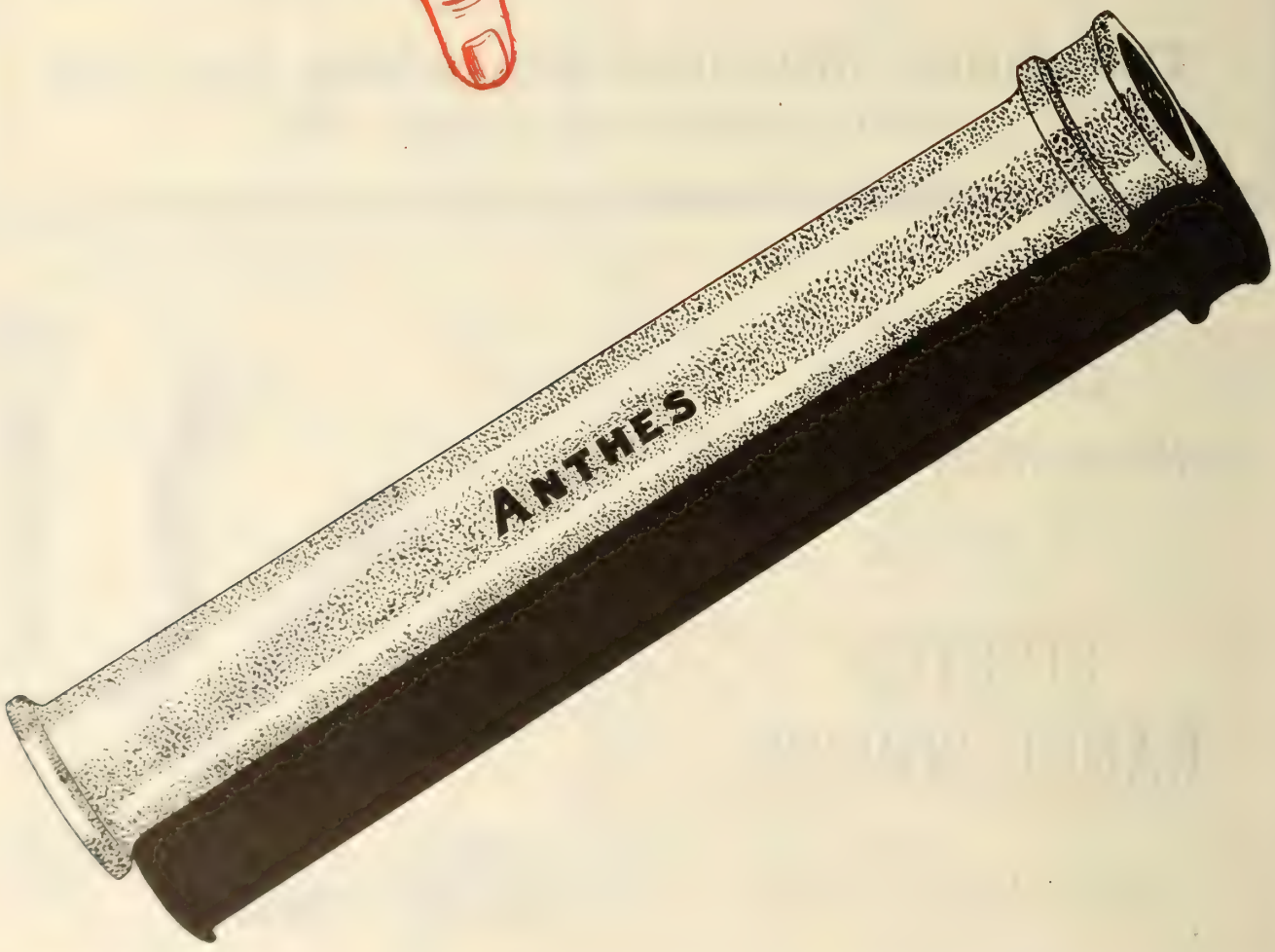


WILLIAMS' SUPERIOR
DROP-FORGED WRENCHES
40 Standard patterns, in 1000 sizes

J. H. WILLIAMS & CO., Limited
"The Wrench People"
78 Thorold Road St. Catharines, Ont.

See that the

is on



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Cast Iron Soil Pipe and Fittings

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L. L. Anthes.

ANTHES

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Warden King, Ltd., Montreal.

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James Morrison Brass Mfg. Co., Toronto.
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Port Hope Sanitary Mfg. Co., Ltd., Port Hope
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Hall-Zyrd, Hespeler, Ont.
Vulcan Co., London, Ont.

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Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal and Toronto.
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W. H. Cunningham & Hill, Ltd., Toronto.
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United Brassfounders & Engineers Ltd., Manchester, Eng.
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The Westco Pumps Limited. Toronto.
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Lord & Burnham Co., Ltd., Toronto.
Steel & Radiation Ltd., Toronto.
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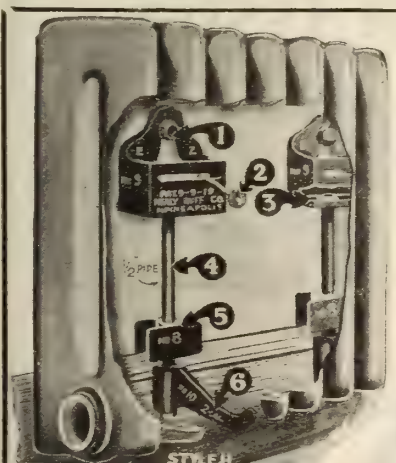

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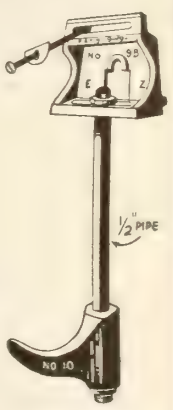

Style "R"

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Let Us Quit This Sentimental Twaddle!

Canadian employers have been bitterly scored, time and again, for crimes of which they have not been guilty, says Dr. C. K. Clarke in his article entitled

"Occupational Wanderers"

which appears in the April 15 MACLEAN'S. In this article Dr. Clarke shatters one myth about the average factory girl. Many so-called reformers have insisted that factory conditions and low wages are at the bottom of the economic and moral catastrophes which wreak havoc with certain types of working girls, and a great deal of sentimental twaddle has been talked about conditions which are purely imaginary.

After long study of the question Dr. Clarke has come to the conclusion that "the majority of the misfits are earning far more than they are worth," and "the best of Canadian factories are an inspiration and it is doubtful if either psychiatry or psychology can contribute much in making suggestions of value." Many boys and girls, men and women, who are not overly bright mentally, are enabled by proper care to overcome their handicap and find a niche which enables them to play a useful role in factory life.

Dr. Clarke brings out some startling facts in this article, which will be of interest to every employer of labor in Canada, as well as to all thinking men and women who are interested in the welfare of working men and working girls.

Other fact and fiction features in this **APRIL 15th Issue**

Who Strangles the Farmers?
By Agnes C. Laut.

Stop the Battle for Lunch
By Eric Stephenson.

Yo Ho! And a Bottle of Rum
By Bertrand W. Sinclair.

The Lady With the Hatchet
By Maurice Le Blanc.

Woman's Harp of Work Has Many Strings
Gertrude E. S. Pringle.

Ovington's Bank
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A Canadian Who Painted the Prince
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The Martin Portable Vise Stand

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Suitable for the approaching period of building activity, road construction, etc. This is a line of great importance in making successful, profitable contracts. Our C. T. Brand of Wrought Pipe has been

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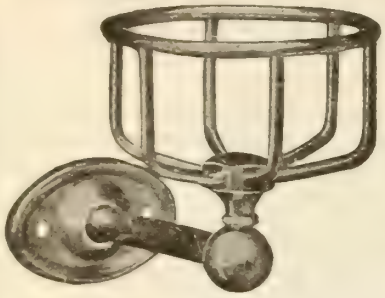

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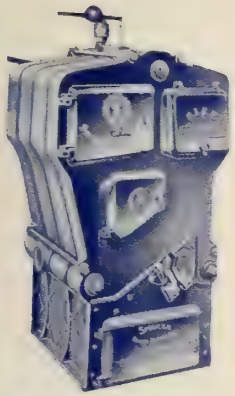

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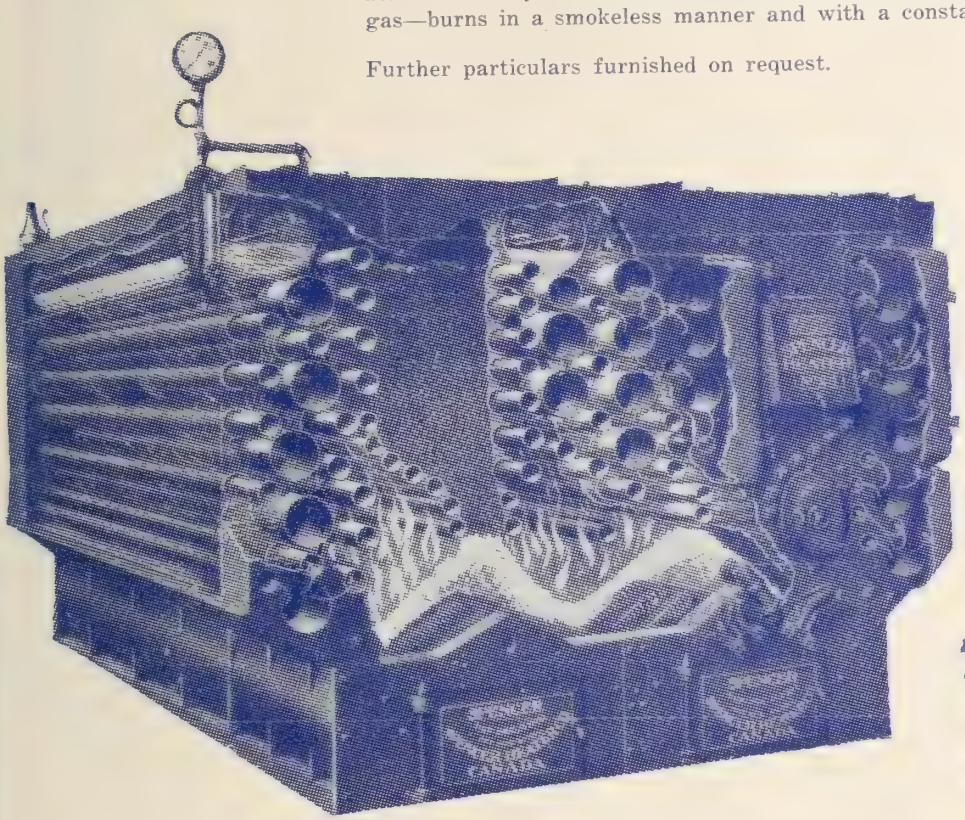

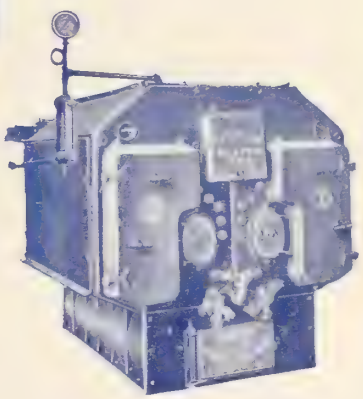

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Plumber and Steamfitter of Canada

Vol. XVI. PUBLICATION OFFICE, TORONTO, MAY 1, 1922 No. 9

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THE Sanitary Engineer who installs our Empire Closet Combinations will have the satisfaction of knowing that he is supplying his customer with an article that has been tried and tested in long years of service.

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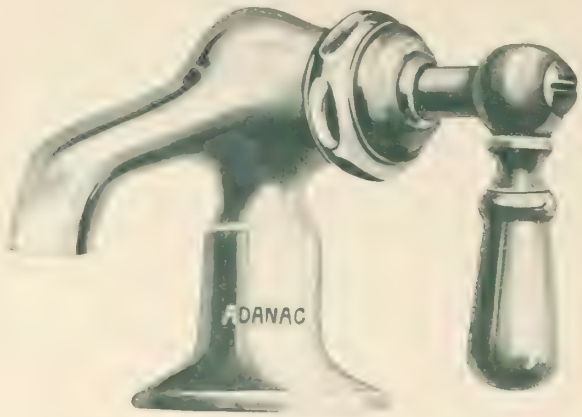

Fig. E1104—Index Cross Hdle.

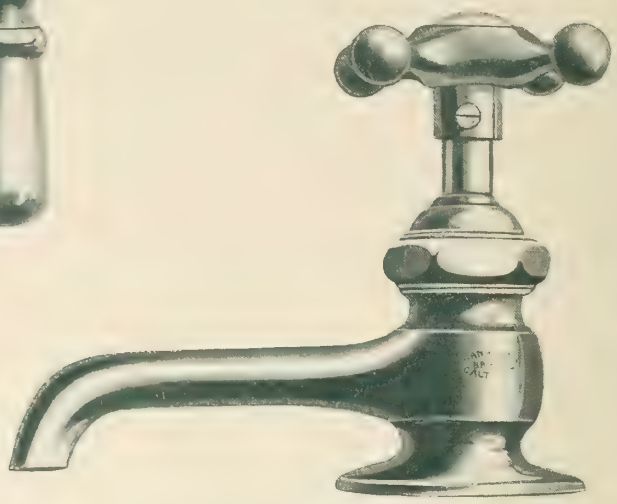

Fig. E1104—Index Cross Hdle.
Fig. E1103—Plain Cross Hdle.

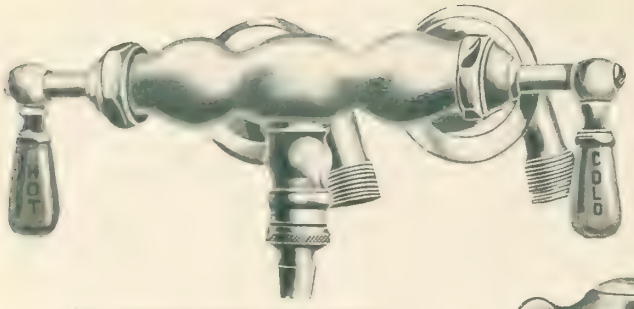

Fig. E1111—Index Cross Hdles.

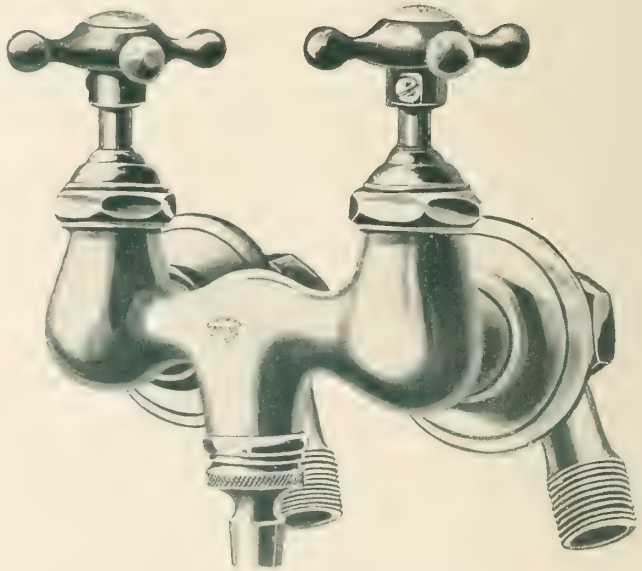

Fig. E1098—Index Cross Hdles.
Fig. E1097—Plain Cross Hdles.

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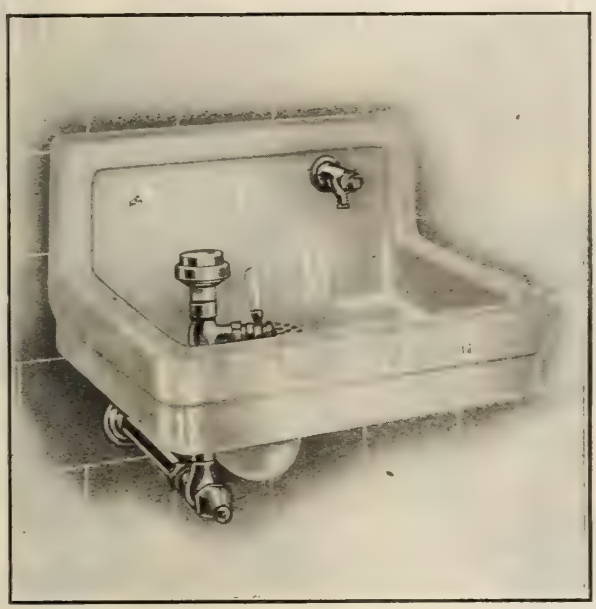

Plate 901

Dirt and germs will not readily cling to its smooth hard surface so that with a minimum of effort its original glistening whiteness will be retained after years of use.

The fittings illustrated are only suggestive. A variety of good sanitary bubblers are obtainable which will readily fit either of the patterns shown.

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Plate 909

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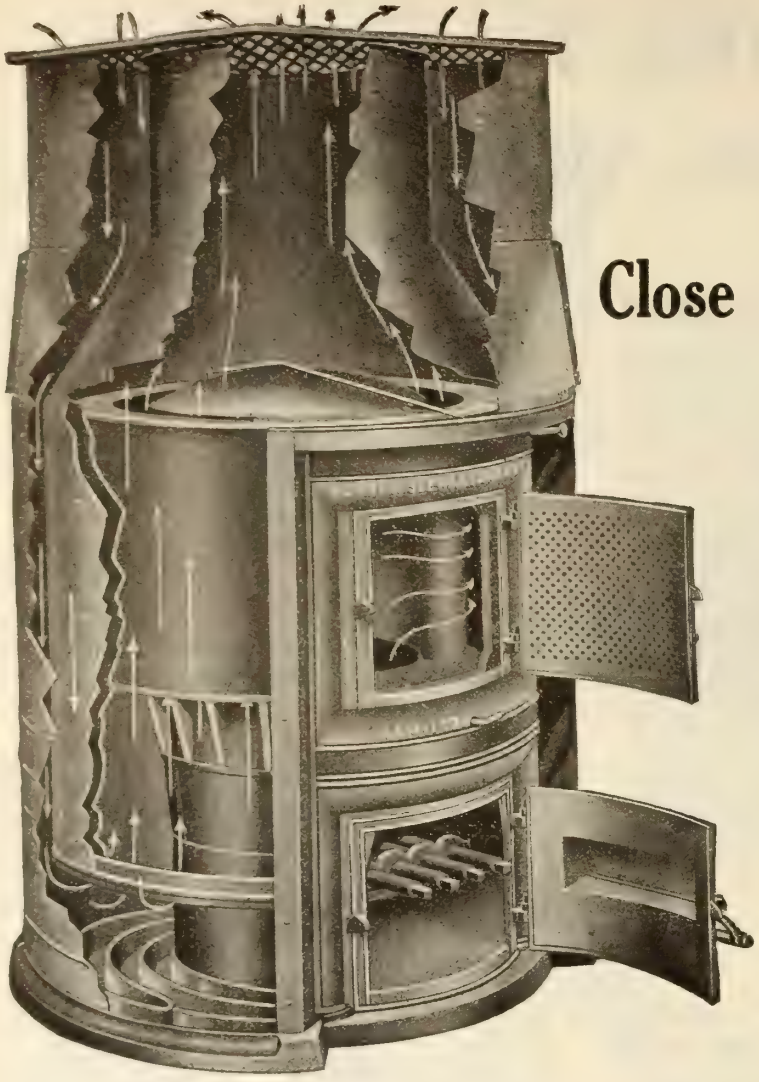

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When heating their houses every one of your customers desires a furnace that can keep the house comfortably warm for sitting to read, or even sufficiently hot to raise flowers—in other words to make the home always comfortable.

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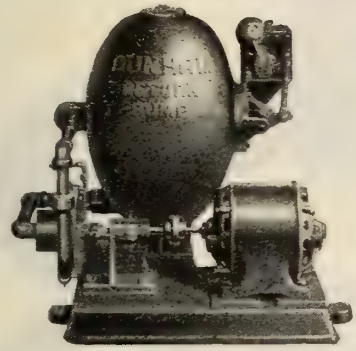
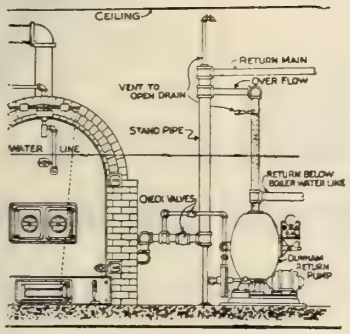
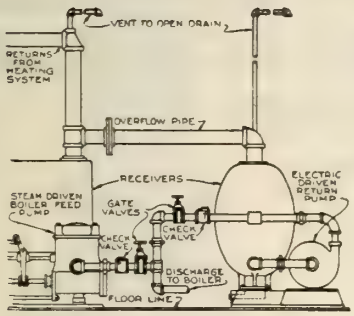
★ No. 9

HANDLING CONDENSATE

Dunham Return Pump







It very often happens that the return piping from a heating system has to return to boiler **very near** or below the waterline of the boiler. Such installations require some positive mechanical means for returning the condensate to the boiler and which also permits free venting of air from the radiators.

The Dunham Return Pump, which is an automatic electric driven centrifugal pump, **stopped** and **started** from a float switch, completely fills the requirements.

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The former waste of condensate from heating systems where returns are below the boiler waterline can be entirely eliminated now by use of the Dunham Return Pump.

The dissatisfaction from the use of low pressure steam pumps for night service is well known, as well as the waste of condensate and water-logging of the heating system during the night period.

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Built in various sizes for pressures up to 40 pounds boiler pressure and capacity to handle 30,000 square feet of direct radiation, or more.

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★ This is the ninth of a series of talks on steam heating, appearing monthly in this magazine. You will find them all very interesting and of help in your daily work.

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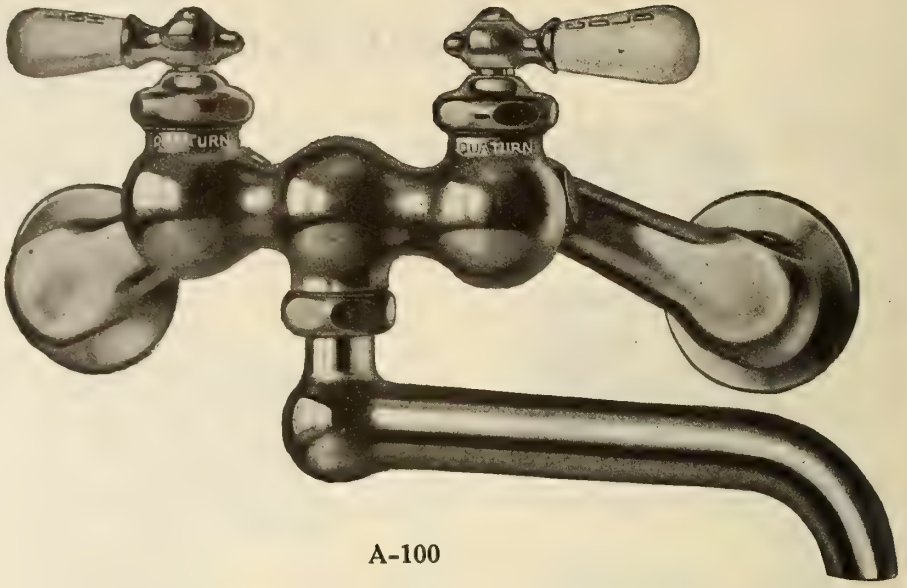

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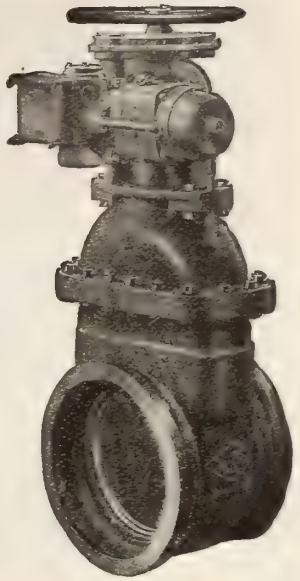

For many classes of valve service, a properly designed electric control affords the most reliable method of power operation.

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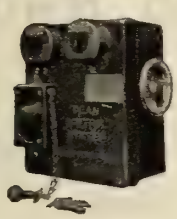

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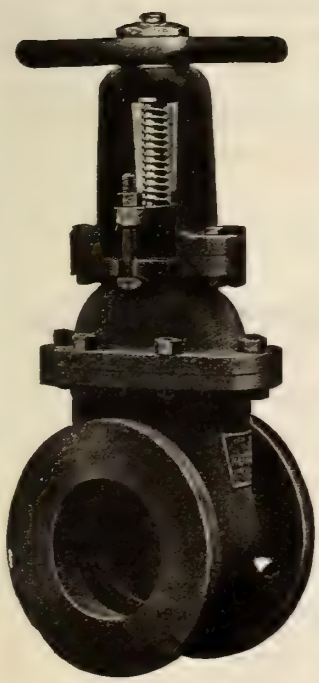

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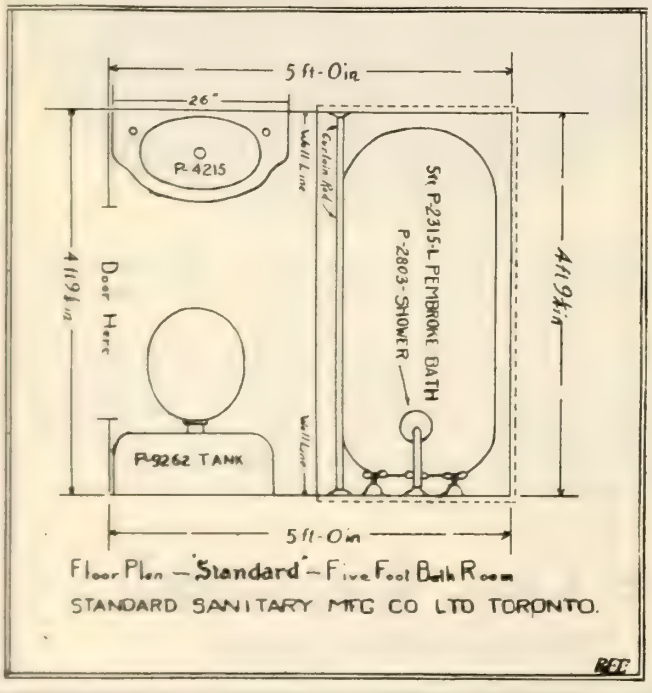

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SANITARY ENGINEER
PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907 PUBLISHED TWICE MONTHLY

Vol. XVI. PUBLICATION OFFICE: TORONTO, MAY 1, 1922 No. 9

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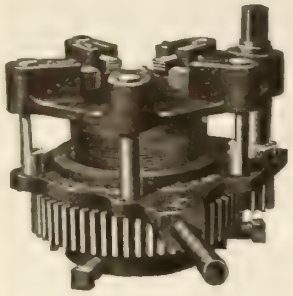

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Plumber and Steamfitter of Canada

Published First and Fifteenth of Month

Vol. XVI. MAY 1, 1922 No. 9

"Plumbers Lack Adequate Organization"

Prominent Master Plumber of Quebec in Discussing Alleged Lack of Protection by Supply Firms in Merchandising of Plumbing Equipment Lays Difficulty at Foot of Poor Organization—Maritime Plumber Charges Unfair Methods Employed by Local Supply Firms

EDITOR'S NOTE:—Further details are given herewith on the question of protection of master plumbers by supply firms in order to enable the former to successfully operate showrooms. A number of articles have appeared in recent issues and this article outlines something further of the situation in Quebec Province and in the Maritime Provinces. The Editor welcomes further advice on the subject from any part of Canada and writer's names will be withheld from publication if desired. This is one of the most important topics brought before the sanitary and heating industry in Canada for some time. What is your solution of the difficulty?

THAT the sanitary and heating industry of Canada is suffering a considerable obstacle to business in so far as little encouragement is offered for the adoption of up-to-date merchandising facilities, was one of the predominant notes sounded at the recent convention of the Ontario Society, D. S. & H. E., and also at other conventions of sanitary and heating engineers. In connection with this subject the question of conducting showrooms is important. On this point Sanitary Engineer has had much to say in recent issues and further evidence is being produced with the idea of showing exactly where the operators in this industry stand in regard to merchandising facilities.

Following up exposures made in recent issues of Sanitary Engineer by a prominent master plumber of Quebec, a request was made through the author of those exposures that other master plumbers of that province should also outline their experiences in connection with showrooms. Our informant advises that "although other master plumbers complain about the same trouble they do not care to write about it, rather believing in the principle of 'let George do it,' and I am trying to help George in this matter."

Holding Conference

Sanitary Engineer is advised that a number of representative plumbers of Quebec have been in conference on the subject of insufficient protection of showrooms from supply houses, and their recommendation will be shortly outlined. Concerning recent articles on this subject in Sanitary Engineer, the Quebec master plumber in question states, "I have read very carefully your March 1 issue and I noted particularly the article headed "Sell to anyone." That gentleman says, "the master plumbers were said to be responsible to the extent that they have no organization strong enough to deal with the situation, and certainly not fully representative of the trade as a whole. No concerted action has been taken by them toward correcting present evils."

"This statement to my mind is absolutely true. There stands all the evil and I think I know something about trade associations. After having studied our association, looking over the past and after attending several conventions I am convinced that unless it is reorganized on new lines and led by an energetic and progressive president, we cannot expect any help from this source."

Maritime Plumber Speaks

Removing the sphere of interest from Quebec to the Maritimes, there is again evident some complaint due to lack of protection for master plumbers by supply houses. In this connection Sanitary Engineer is advised by Fred Uncles, plumbing and heating contractor of Newcastle, N. B., as follows:—"I have read several articles in your paper re wholesale houses selling plumbing supplies to consumers. I have known numerous cases of this kind right in our own town and county and do consider that drastic steps should be taken to put a stop to this kind of business. I know of one concern in St. John that does this kind of business and have gone so far as to send men out to do the work. Only yesterday I had a man come to my store and ask me for a price on a plumbing system, stating that he did not want the fixtures included as he could buy them at the same price as I could. Our conversation at this stage changed into heated argument. Now there are four wholesale houses in the provinces of Nova Scotia and New Brunswick whom the trade buy from. Two of these concerns I have never known to do this kind of business, the third I have absolute proof of them selling plumbing supplies to the consumer and also doing the work. The fourth concern has done this same thing but since they have been put on the jobbing list I have not heard tell of them doing it."

Supply Firms Reply

Sanitary Engineer has been in touch with the four supply firms mentioned by this master plumber. One of them advises "we have always made it a practice NOT to sell to the consumer and while in some cases we have quoted the consumer we have always protected the master plumbers."

The second supply firm which was not charged with selling direct to consumers advises "we have had a varied experience in the plumbing business practically from every standpoint and while we appreciate the remarks of the master plumber whose communication you have, which refers to ourselves on this point, at the same time the greatest trouble in our opinion with the plumbing situation to-day is not so much with the manufacturers and jobbers but with the master plumbers themselves, and until they arrive at a position where they have confidence in themselves and their fellow master plumb-

(Continued on Page 12)

Questions and Answers Regarding Plumbing and Heating Practice

IN answer to an inquiry re cesspool for three bathrooms and eight sinks, to be made in water-logged ground we would suggest that a septic tank be installed in preference to an ordinary cesspool, this being cheaper to construct and giving better results especially in water-logged ground as same would not require to be carried to such a depth. The required capacity can be obtained by increasing the length and width with only sufficient depth being allowed in the tank to arrest and store the precipitated solid matter, in order to prevent continuously having to clean out the tank.

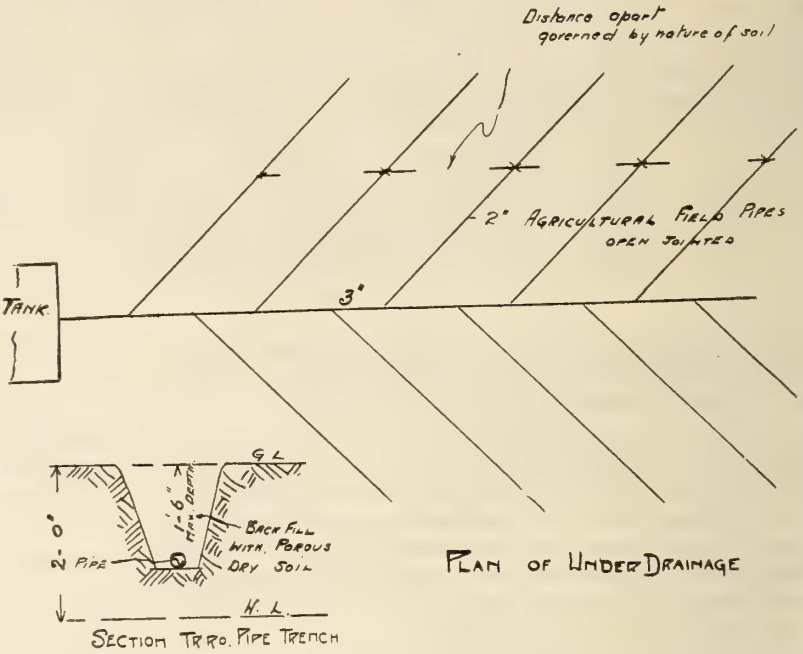
The system adopted by the correspondent of constructing same out of logs was bound to be a failure and fill up quickly as water will always find its own level, so unless the cesspool is constructed of waterproof material the water will always stand at the same level in the tank as in the adjacent ground, which would be two feet from the surface in this case. If the correspondent wants to install a cesspool, would suggest using a concrete floor and walls, mixture of super cement, 9" x 12" thick; or construct in a rich concrete mixture 1, 2, 3, and provide for some waterproofing material to make same absolutely watertight.

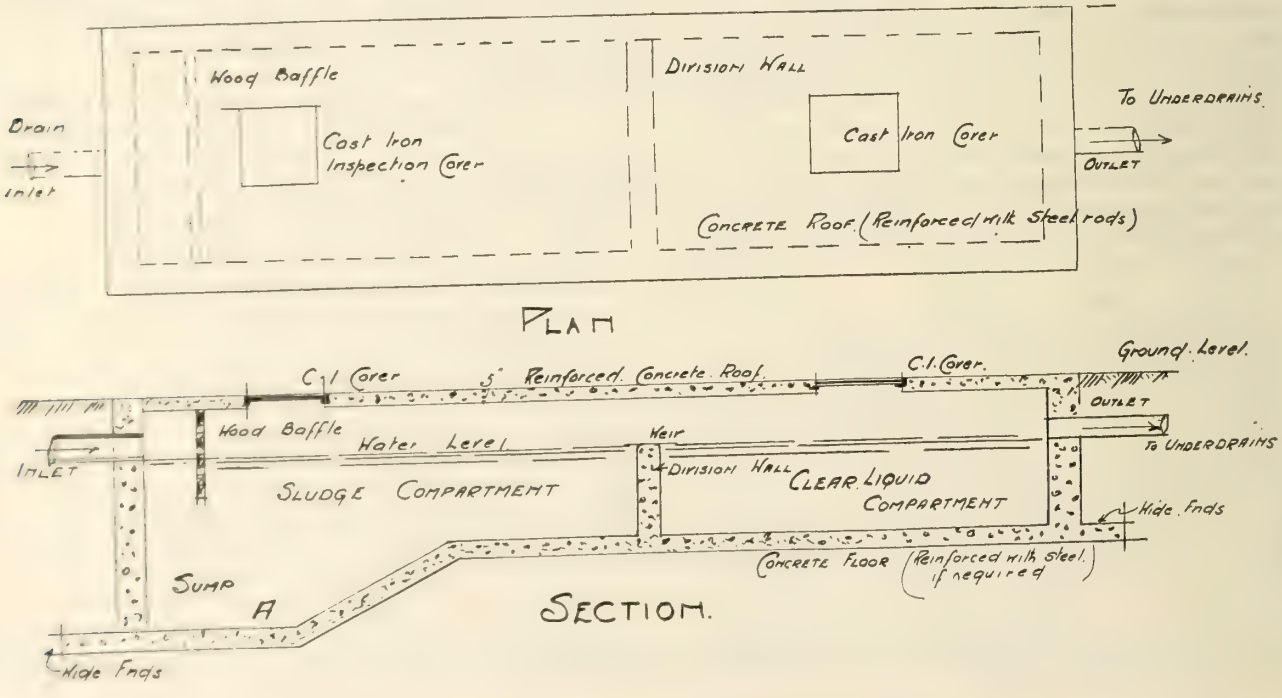
The accompanying sketch clearly shows the design of septic tank we would suggest being installed from the data at hand.

The area excavated for the tank should be kept dry by installing a hand pump in the sump marked A on accompanying sketch and continuously pumped until the concrete is well laid and beyond the action of the water. Sheeting may have to be installed around the excavated area to prevent the water gaining free access to the hole unless the pump is of sufficient capacity to keep the excavation dry.

The concrete 1, 2, 3, mixture with waterproofing material should be mixed in a fairly dry state and well tamped to make a consolidated non-porous floor and walls impervious to moisture and thoroughly watertight.

Owing to the number of gallons the tank is required to hold not being stated the sizes cannot be given and not knowing the exact nature of the ground the thickness and general design of the tank cannot be furnished.





RANGE BOILER CONNECTIONS

Question.—Will you let me know the best method to adopt in connecting range boilers as per sketches. In sketch No. 1 the information I require is as to how you would connect the hot water supply from these two boilers which would be on the same floor to bath room, lavatories, etc., in the house. Also the best method of connecting range and jacket heater with boilers. What I want to do is to connect the boilers so that should the kitchen range be going and the jacket heater out, or vice versa, cold water would not be drawn through the boiler not heated.

In connection with sketch No. 2 would you tell me how to connect 66 gal. boiler in basement which is already connected with laundry heater, to kitchen range above as my client does not want the range boiler in the kitchen but wants it to remain in the basement.

"Subscriber," British Columbia.

Answer.—Referring to subscriber's sketch No. 1:

We believe that the piping could be arranged to the best advantage by making the hot water connection of range-boiler and water-front just as shown on the drawing, and, then, making the connection of the jacket heater and its boiler by a direct connection to the hot water pipe as shown by the dotted lines.

The connection "B" should be made by means of an elbow. The elbow should be set so that the connection of hot water fixture-pipe and range boiler be taken out below the tee "A," which is to serve as a connection for the boiler at the jacket heater.

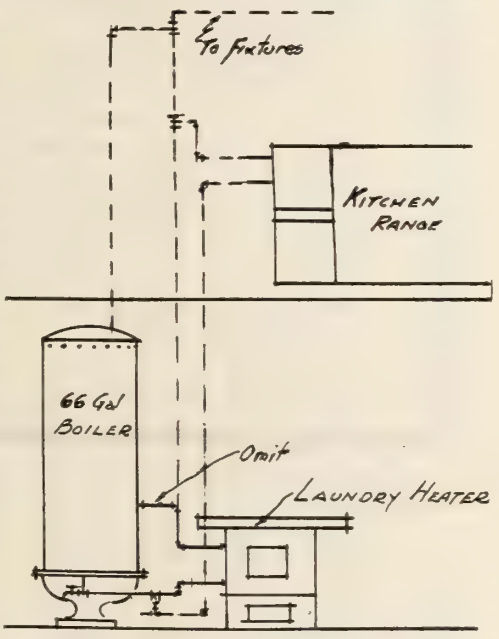
It is not advisable to put shut-off valves anywhere in the line of piping, because valves when so placed become a source of danger when left closed by a careless attendant.

If the system is installed along the lines here suggested there should be circulation through the heated tank only. Of course, at times, when the draw-off of hot water is not very great, during such times as the fire is continued for some length of time, some circulation will take place in the cold tank, but it will not be at any considerable extent.

Referring to sketch No. 2:

The hot water pipe from the laundry heater should be continued right up to, and as far as possible above, the water-front in the kitchen range. At the highest point in this said pipe there should be a branch to some fixture so that steam—which may at times form in this loop— will have a vent outlet. If there is city water pressure in connection with this system, there is not likely to be much air or steam forming so that the water circulation will be blocked. However if the water pressure is not very great, great care must be exercised by the fitter so that he may be sure that no air or steam pockets will occur at points where difficulty may be experienced in the venting of same.

The dotted lines on the drawing indicate, in a general way, how these connections should be made.



SUBSCRIBER'S SKETCH #2.

437 PLUMBING DEFECTS DISCOVERED

Hamilton, Ont.—A draft of a proposed by-law, respecting gas stoves and ranges, has been submitted by Sanitary Inspector Thornley. The board of health was unanimous in its approval of the bill, and H. Barr was instructed to refer the proposed by-law to City Solicitor Waddell, K.C., for his consideration.

The by-law affected is No. 1,366, which will be amended by inserting sections respecting ventilation regulations. It states in part that all gas stoves must be provided with metal pipes, and if the medical officer so recommended, metal hoods must be installed.

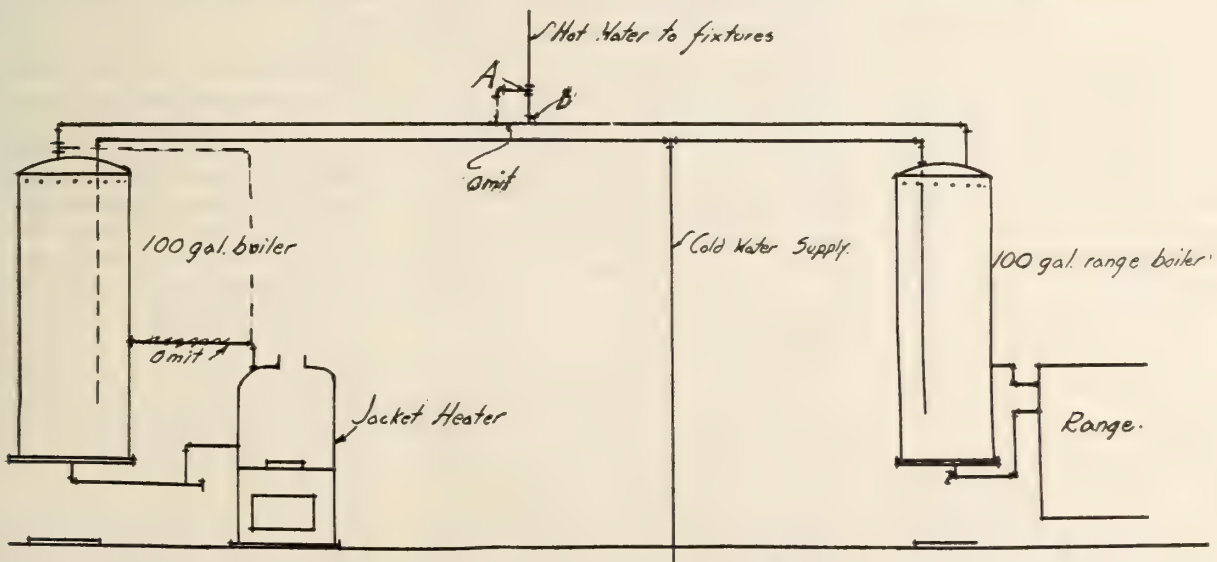
The use of rubber pipes to carry off fumes is prohibited under the proposed enactment.

Sanitary Inspector Thornley reported a total of 99 observations for the past month with regard to chimneys. He also reported on artisan dwellings now nearing completion. The inspector reported 48 inspections of boiler rooms in various plants.

A total of 987 dwellings were inspected by the sanitary inspectors. There were 1,029 yards and alleys inspected; 437 plumbing defects discovered, and other nuisances or defects totaling 1,398, were dealt with.

OUTLAY OF $90,000 FOR MONTREAL SEWERS

The program of sewer construction in Montreal will soon commence, the Executive Committee of the City Council being about to let the contracts for a number of the local streets. The lowest tenders received require an outlay of about $90,000.



SUBSCRIBER'S SKETCH #1.

Improves Harmony Among Operators

Sanitary and Heating Engineers of Port Arthur, Ont., Combine With Signed Notice of Wage Standards and Suggest Customers Check Materials and Time Charged—Raises Appreciation of the Trade Among Citizens

A SOMEWHAT novel plan has been worked out by sanitary and heating engineers in Port Arthur, Ont., which tends to settle questions of labor disputes among operators and also tends to raise the appreciation of citizens for their local sanitary and heating engineers.

Elsewhere on this page is reproduced the ad recently used by all the operators of Port Arthur and bearing the signature of each firm, dealing with a reduction in rates of wages on labor for plumbing and heating repair work. This ad points out that customers should wherever possible check materials and time charged by mechanics before leaving the work. It points out that traveling time to and from work is charged at regular rates and repairs are cash.

Discussing this matter with Sanitary Engineer, J. W. Barnes, Lakehead Engineering Company, Port Arthur, stated in regard to the notice which was placed in the papers:—

This will speak for itself. We have found that this is the most successful thing that we have ever done in our association in Port Arthur. We tried this matter three years ago and we have found that it eliminates all disputes in connection with our labor charges, and we also find that it is looked upon by the average citizen as good business. In fact I believe it has been instrumental in raising the sanitary and heating business in our town to a much higher level than it was previously, as it shows the average public that we are willing to give service, but we want that service to bring in a fair remuneration which will allow us to keep it up to a high standard.

"I have noted in your paper considerable discussion on labor charges, overhead expense, etc., and I take this method of showing the different members of the craft who read your paper, how we treat the jobbing and repair end of our business. The charges may appear high to lots of men who do not take the time to go in and thoroughly figure out what their labor on jobbing and repair work actually costs them. We estimate our overhead on labor at 30 per cent. and I think when you take into consideration the amount of lost time that has to be accounted for, that our estimate is on a low basis at that.

"We advertised this in the local paper for three days. We have cards printed 10 x 14, and these cards are tacked up in very conspicuous places in our shop so the public can see at a glance what our labor charges really are without asking any questions."

NOTICE!

Reduction in Rates on Labor for Plumbing and Heating Repair Work

SCHEDULE OF PRICES for repair or day work charged by the following licensed plumbers and steamfitters of Port Arthur, effective March 1st, 1922:

Skilled Mechanic, Plumber or Steamfitter, per hour.....	$1.50
Helper, per hour	1.00
Apprentice, first, second or third year, per hour.....	.50

Patrons are requested, whenever possible, to check materials and time charged by mechanics, before leaving the work. Repairs are cash, and, if mechanic asks for payment, please understand that he is acting on instructions. Travelling time to and from the work will be charged at regular rate per hour.

(Signed)

Lakehead Engineering Co., per J. W. Barnes.
R. A. Shaw.
Geo. Purvis.
Geo. Bell.
Greene & Stirling.
H. R. Sime
Dominion Plumbing Co., per J. Sime.

NOVEL DEPARTURE

Continued from page 9

ers we cannot see where their position generally will be improved."

Advice from the third supply firm which was charged with selling direct to consumers, is as follows, "We protect the plumber in all instances. We also wish to advise that we do no installation work of any kind, and furthermore, if the plumbing contractor who advised you installed any of our goods on a contract he is certainly entitled to a commission and will recieve same on application to us provided of course such material was supplied by this firm. Our books carry the accounts of practically all the sanitary engineers in the maritime provinces, all of whom we believe it is our duty to protect in the interest of and for the welfare of the trade in general."

Protect Plumbers' Interests

The fourth supply firm advises, "We have always been very careful to protect the interests of the master plumbers, believing that it was not only right but to our own interests to do so. We maintain a showroom for the benefit of such of them as are not in a position to have one of their own and encourage them to bring their customers to our store. There are certain people who having dealt with this company for years prefer to buy this material from us direct, in which case we make a sufficient difference in the price which we charge them and our wholesale prices, to allow the master plumbers a nice margin and credit the difference to his account. We are pleased to say that this method has worked out entirely satisfactorily in our case and we have yet to hear of any complaint from the master plumbers."

UNBREAKABLE GLASS INVENTED

A Bohemian firm of glass manufacturers asserts it has invented unbreakable glass, which can also be used for cooking. Such assertions have been made to some extent in the past, a French factory turning out toughened glass about 50 years ago, which could be thrown from a height without smashing. Its reputed performance was, however, not trustworthy and occasionally it would fly into powder, for no apparent reason. The inventors of the new glass declare that not only is it unbreakable, but that tumblers of it can be placed on red-hot stoves, wood can be lighted in them and they do not crack.

Plans for a new six room school at Hensall, Ont., are being prepared by Architect W. G. Murray, Dominion Savings Building, London. Prices wanted on heating and plumbing.

Heating and Ventilating

Combination Heating Systems

An Important Series of Articles Dealing With Many Interesting Phrases of Latest Developments in the Field of Heating Practice

(Written exclusively for Sanitary Engineer by NORMAN A. KEARNS)

(Continued from March 1st Issue.)

IN continuance of the policy of presenting more than one possible system of warm air piping we are now showing with the accompanying sketch a lay-out somewhat different to that with which most of our readers are familiar. This system is known as the "Aspirating Type."

It is not because we recommend this system that it is shown. Later on we expect to describe a larger house wherein a system similar to this has been installed, and the reader will then note when certain principles followed in a system of this kind may be well applied where a different style of installation is to be made.

When a system such as this is to be installed in a residence or other type of building, all doors and windows of the house should be "weatherstripped," so that air leakage will be reduced to a minimum. The main idea of the originators of this system seems to have been the heating of the house without perceptible air currents. Therefore, it is essential that every means be taken to prevent outer air entering the building save by way of the cold air inlets.

The sketch is not to be considered as a detailed working drawing of an aspirating system of heating, nor as an indication of the only way in which such a plant may be installed. It is simply a sketch illustrating the main ideas followed in the installation of work of this class.

The basement piping is shown by dotted, and dot and dash lines on the ground floor plan. The circle in the centre of the plan indicates the position of the furnace in the basement. Upon reference to the sketch the reader will note that the setting of pipes, registers and faces is in no way similar to that of any warm-air system of heating heretofore illustrated in this series of articles.

In all of the former articles we showed the warm-air registers set very close to the furnace: in this system the warm-air registers are shown set some distance from the furnace and against the cold outer walls.

At "A" and "A" on the drawing, cold-air intakes are shown. These intakes are set so that cold out-door air may be admitted through either of the two openings which are set at opposite ends of the building. The duplicate arrangement is made so that varying directions of the outer air currents will have little, or no, effect on the proper working of the system. The cold air inlet should be fitted with covers or protected by a hood, so that no snow or rain may be driven into the inlet by the wind. These inlets should also be fitted with bird-proof screens and back-draft check dampers, such as those illustrated in former articles in this series.

The cold-air ducts may be built as tunnels set under the basement floor, or they may be erected in the form of metal trunks on the basement ceiling.

If the duct be of metal, and run on the basement ceiling, it will be necessary to cover that duct with some heat-insulating material, so that the bare, and cold metal surface will not chill the basement, or the floor above.

The area of each cold-air duct should be almost equivalent to the total area of all of the warm-air ducts.

Return Air

The drawing does not show any provision for the return of air from within the house to the furnace. This can be arranged for by the setting of return faces under the rear window of the dining-room, and under the front window of the parlor.

The return-air faces should be fitted with valves. These valves must be so arranged that the act of opening the return-air passage will close that of the cold-air inlet. This detail was shown by one of the drawings which was used to illustrate a former article in the Sanitary Engineer.

Furnace

The furnace used will be one of the regular approved portable types, fitted with a tin lined galvanized iron casing, a water-pan, and the usual run of firing and cleaning tools.

Warm-Air Pipes

The warm-air pipes connect the bonnet of the casing with the various registers and wall stacks shown. And, in so far as it is possible to do so, the warm-air pipes are run on the "trunk" system, so that one pipe may feed more than one register or stack. In this connection it should be noted that the pipes B and C feed a register and a wall stack.

The register in the hall is set in the floor, so that it may be used as a foot-warmer.

Wall Stacks

The wall stacks are not run between the studs. There is hardly enough room for the large stacks required in this system. So we run the stacks up the face of the walls, cover them with asbestos, and then finally case them in with wood or plaster pilasters.

That side of a stack which is exposed to the cold wall must be well insulated, otherwise the cooling effect of the cold wall may be sufficent to prevent an upward flow of warm air.

Vent Stack

The vent stack is set nearly on the center of the plan.

Through the vent stack there runs a smoke-pipe of cast iron, or vitafied tile. It is because of the short life of steel smoke-pipes when installed under the conditions which here obtain that makes

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GOOD RESULTS FROM $150 SPENT MONTHLY ON ADVERTISING

Speaking recently of the value of advertising in his business, C. R. Paddon, one of the members of the firm of Paddon Co. Ltd., Windsor, Ont., plumbing, heating and sheet metal workers, stated, "We fully believe that it is our continual advertising in the daily paper that has been keeping us going where most of the others plumbers have been quiet. Although we cannot trace many direct results of large jobs to our advertising there has been considerable smaller work come to us.

"Our advertising has been averaging us nearly one hundred and fifty dollars per month but we feel that by backing up what we say, by doing good work and endeavoring to please the public, we are gradually building up a good substantial business. We have kept ten plumbers and steamfitters going all winter, five of the plumbers being kept almost continually on smaller jobs and repair work. Besides these men we have kept going five helpers and one digger, also a tinshop engaging seven men."

necessary the use of cast-iron or vitrified tile smoke pipes.

It will be noted that a separate flue (R) is shown on the drawing. This flue is for the kitchen range. It will not be necessary to provide this separate smoke flue if a tight-fitting check damper is placed in each of the smoke pipes. Care must be taken to see that the damper in either of the cold smoke pipes be closed, otherwise the cold air which will enter the smoke flue by way of the unused range or furnace will check the draft on that flue which may be under way.

Vent Openings

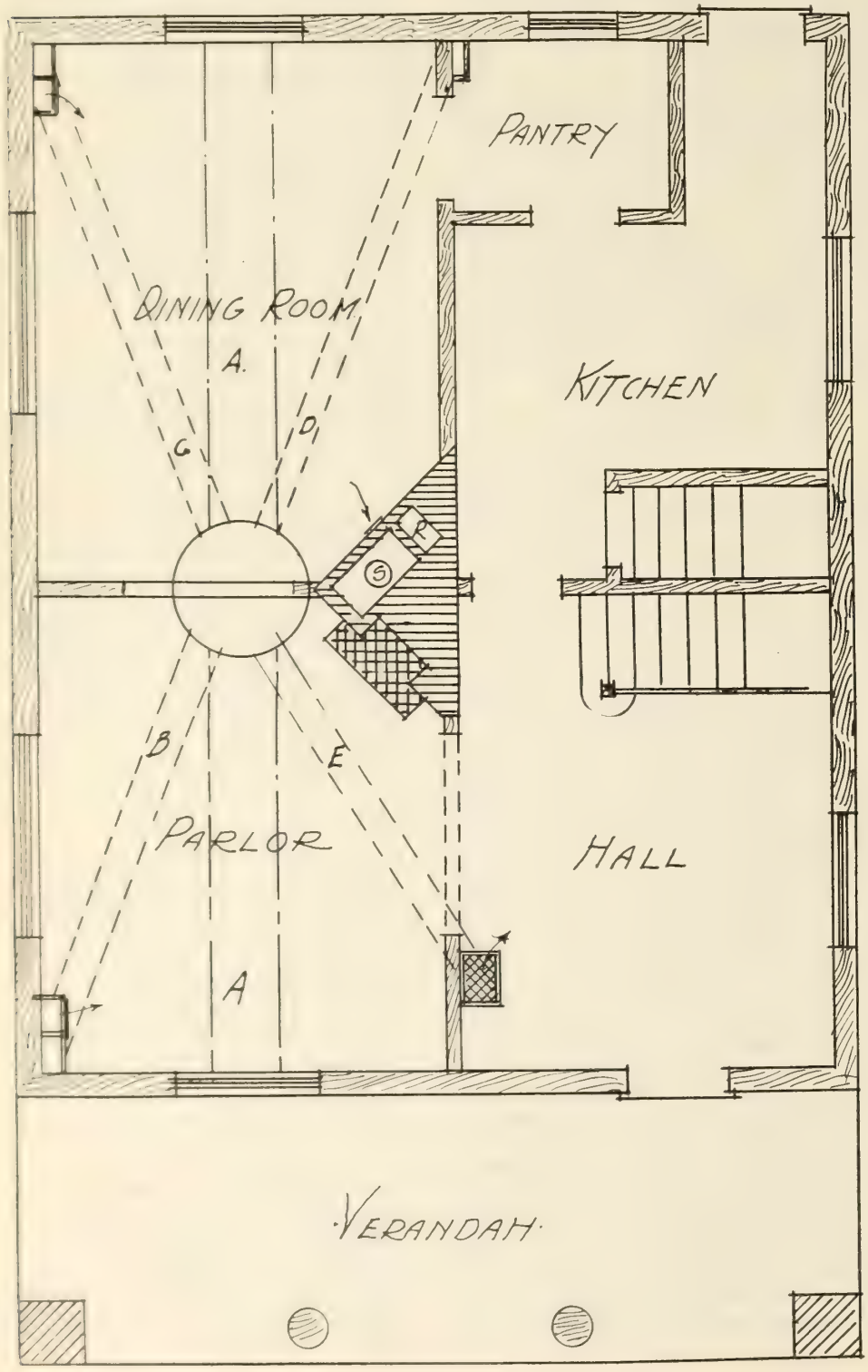
The only vent opening showing on the ground floor plan is the one in the dining room.

The vent for the kitchen will be by way of a hood which is to be placed over the kitchen range. The hood and vent flue are to be connected by means of a pipe, fitted with a tight check-damper. The purpose of the damper is to close off the kitchen vent when conditions might be such as would induce a back-draft. A condition of this kind might exist during such times as when the fire might not be burning in the range.

The fireplace in the parlor will act as an effective vent for this room.

No vent face is shown for the hall. A vent face here would be useless, because of the stair-well, which under ordinary conditions acts as a vent shaft. Air will pass up this stair-well and enter the vent shaft by way of the vent faces found in each of the upper rooms.

All vent faces should be fitted with valves, so that when the return-air-faces are opened the vent-faces may be closed. It is necessary that this provision be made, as it is utterly impossible to work the return-air and vent systems at the same time.



JOURNEYMEN WANT BY-LAW

North Bay, Ont.—Charging that by-law 320 regulating the sanitary conditions of buildings in the town, although in existence for six years, has been flagrantly and repeatedly ignored, representatives of the United Plumbers and Steamfitters' Union Association of North Bay appeared before the local council and presented a strongly worded communication protesting against these conditions. Assurance was given that the by-law will be enforced. The Ass'n. was represented at the meeting by W. Giggs and James Bailey. In their communication the journeymen plumbers outlined the by-law calling for the licensing of plumbers who do any plumbing work in the city, for the sanction of the local engineer on all local works, for the proper venting of plumbing, for the inspection by a competent inspector of all installations, the water or smoke testing of installations, concerning the non-installation of water pipes so as to be drained by gravitation to the stop and waste cock, and pointed out that much work now installed in no way complies with these requirements, thereby facilitating the spread of diseases.

CITY'S POSITION IS UNIQUE, HE SAYS

Hamilton, Ont.:—After a brief survey of local topographical conditions, H. P. Eddy, American consulting sanitary engineer, characterized Hamilton's drainage system as unique. That Hamilton had four distinct and isolated sewage disposal plants rather surprised him and he remarked that he knew of only one American city that had nearly so many, i.e., Atlanta, Ga., which has three disposal plants.

Although he did not feel in a position, until after the inspection of the plants, etc., to say whether he would favor a more centralized system of drainage for Hamilton, he expressed the opinion that a single, centralized sewage disposal system for the city might perhaps be less costly than the present plan of isolated plants.

What impressed Mr. Eddy as unique about Hamilton's system was the manner of its development. The bay front, with its many deep inlets, and the mountain, which backed the city, helped to make Hamilton's drainage problem quite complicated, and, Mr. Eddy thought, its solution would require much serious thought.

Patterns For Y Branch.

Written for Sanitary Engineer, by O. W. KOTHE, Principal St. Louis Technical Institute, St. Louis, Missouri.

TRADESMEN who follow the piping field meet with a multitude of irregular fittings.

In this case our branch is rectangle on the bottom and round at the top of bases, while it is flat on one side.

It can be arranged for a two way branch or a three way branch by merely adding another side branch similar to the one shown.

We first draw the elevation, making the base, and the diameters R and S to suit measurements.

Draw the half sections R and S and square lines to the base lines. Draw the lines from R to the corner B, and then build the lines from S to the miter A-11 as shown.

After this develop the half plan, making the half rectangle 3-C-B'-3' to suit measurements.

Strike section R' and develop the oval section S'.

From points in R' draw lines to the corners C and B'.

Then from each point in miter line of elevation as A-5-7-9-11 drop lines to intersect similar plan lines.

This enables drawing the miter line in plan and joining the lines fom S' to it.

To develop the true section through miter pick the spaces as A-5-7-9-11 from elevation miter line and set at 3-11 on the run of M.

Drop lines and from each point in miter line of plan bring over lines to intersect ones of similar number.

This permits drawing the section M and N, which is the developed girth for developing the patterns.

The true lengths must now be developed. Observe branch S has several altitudinal heights.

So, from each point, as 1-2-3-4, 6-8-10 bring over horizontal lines to cross H-Y line.

In the same way bring over the lines from each rise in miter line as A-5-7-7-9-11.

With dividers pick the plan lines as C-1-2-3-4, also B-1-2'-3'-4', etc., and set from H-T.

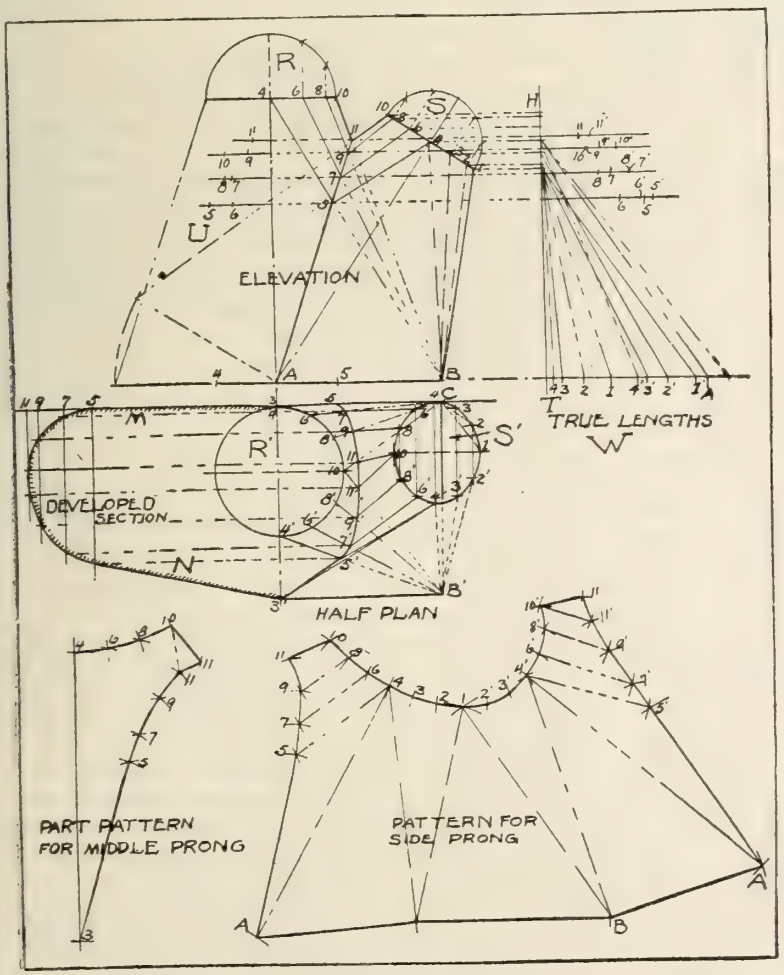
Then from these points draw lines to the altitudinal line which give the true lengths.

The throat true lengths are developed in a similar way, and the true lengths for middle prong are set off the same as any ordinary fitting of this kind. These are shown at diagram U.

The patterns are set out by picking the girths for round bases from R or S, and the miter cut from M or N.

Each side is set out separately as each set of lines is different.

In fact, the plan lines and true length lines must be carefully watched so they are transferred into pattern exactly as they appear in plan. Laps must be allowed extra.



Patterns for Y Branch.

MUCH HAMILTON SEWAGE ENTERING BAY UNTREATED

Hamilton, Ont.,—Mr. Proctor, of James, Proctor & Redfern, who conferred with the committee on sewage, has already made an inspection of the city's disposal plants. He gave a short statement as to the various undertakings successfully carried on by his firm, showing that they had been associated with many Ontario municipalities in carrying on engineering work of every description.

The "four disposal plants here each represent the best of the period in which it was constructed," Mr. Proctor said.

The west end plant seemed to be the best, but all were very much overloaded, carrying much more sewage than they were designed for. It was likely that some of the plants would do good work if repaired and the overload of sewage removed from them.

"The big thing which struck me is that you are spending a whale of an amount of money for a very poor result," Mr. Proctor said.

In some of the plants, the sewage was simply sweeping through into the bay without receiving any effectual treatment. The first thing to be ascertained in connection with designing a new system was whether or not all sewage could be brought to one central plant. If this could not be done, it would be necessary to construct several plants in various parts of the city. The present plants should be carefully inspected with a view to seeing whether they could be restored to good working order.

The cost of sewage disposal equipment ranged from $35,000 to $50,000 per million gallons capacity.

Many American engineers had had much experience in sewage disposal work, Mr. Proctor stated, yet there were Canadian engineers who were perfectly capable of handling the work.

TENDERS WANTED

Tenders for hot water heating at fire hall in Toronto will be received by the mayor up until May 9.

Sanitary Engineer
Plumber and Steamfitter of Canada

ESTABLISHED 1907

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Novel Departure In Trade Agreements

THESE are times when much discussion is centering around the question of trade agreements, and matters pertaining to the relation of workers to employers. Various attempts have been made to alter agreements in connection with the various trades interested in the building industry in Canada, and such movements have also been recently initiated in other countries. In this connection it is interesting to note that a consent decree has been entered in the United States court to end the alleged vicious practices in building operations. The decree is proclaimed as a new bill of rights for the home builder, the manufacturer and the business man. It is said to bring independence to the employer and to the builder and prohibits labor unions from restricting the amount of work to be done by an individual. The conference which decided upon this agreement was the culmination of an investigation of the building trades and housing situation which resulted in the indictment and conviction of large numbers of manufacturers and dealers in building materials many of whom paid large fines and some of whom are now serving jail sentences. As a result of this conference the executive heads of the union have signed and executed a consent to the entry of a court decree affecting the entire national organization and all its local unions. The decree directs that it be published by labor organizations and read to all local unions and be incorporated as part of the constitution of the international union.

The decree lays down and adopts four basic principles providing first that there is to be no limit to the productive capacity of the individual workman within the working day or any other given time. Secondly there is to be no limit upon the right of employers to purchase his materials wherever and whenever and from whomever he may choose whether those materials be union made or otherwise. Thirdly there is to be no favoritism shown by organized labor toward employers or trade associations or contractors' associations and no discriminations are to be indulged in against the independent employer who may not be a member of such an association. Fourth the labor organization is not to be used or permit itself to be used by material men or contracors or subcontractors as an instrument for the collection of debts or enforcement of the payment of alleged claims.

The decree affects the international organization of bricklayers, masons and plasterers, and the provisions of the consent decree as outlined will be incorporated in the constitution of the union. This is a somewhat radical departure in connection with relations between union members and employers, and its effect will be watched with interest by all those interested in the building industry in Canada.

Tax Collection Cost Heavy

THE MANIA for frills in connection with taxation seems to be keeping up judging by the information as outlined in detail elsewhere in this issue concerning the increasing of a travelling salesman's income by the amount of one dollar per day for every day which he is away from home and for which his firm is paying his expenses. Officials of the Inland Revenue Department hold that a salesman who has his expenses paid really has an advantage over the salesman who works on a commission basis paying his own expenses, or the city worker who pays his own expenses at home. It is held that the average salesman spends several dollars a day in expenses and that the dollar per day added to his income by the Inland Revenue Department is really a very conservative margin.

The principle of this tax is one which might be much extended in application. If the underlying idea is that a man who receives expense money is really receiving "moneys in lieu of living allowance" as it has been described, then officials of firms who do considerable travelling and have their expenses paid, but who do not come into the category of commercial travellers, should also be included. It might also be extended to salesmen of many retail hardware firms throughout the country who regularly send out men through the surrounding district to stir up prospective business.

Taking up these various points with officials of the department, Sanitary Engineer was advised that if these men made regular trips which in a year would represent a fairly large number of days, then they should add this amount to their income for every day they were out.

Radio-Telephony

THE WORLD is passing through an age of transition and all the wonders which nature and the genius of man can contrive have not yet been discovered. Proof of this is found in the satisfactory results which have recently crowned the efforts of inventors in connection with radio-telephony. For some years it has been possible to send a telegraphic code by wireless, but it is only a recent development that enables the transmission of the human voice, music, etc., by wireless, and this accomplishment bespeaks considerable change in future methods of communication and possibly of entertainment.

For some time amateur radio-telephone sets have been sold in Canada and the United States and it is estimated that to-day there are in use some 200,000 sets in the U. S. and about the same proportion to population in Canada. A number of electrical goods manufacturers provide sending apparatus at various points to transmit concerts, lectures, etc., for the benefit of these amateurs, and many pleasant evenings are spent by these operators and their families in listening to entertainment provided many miles distant. Some public concerts have recently been held in Toronto at which the wonders of radio-telephony have been demonstrated by providing, through an amplifier, various musical numbers being played several miles away and transmitted by wireless.

There is little doubt but that in the near future radio sets will come into very wide use in Canada. Several builders of apartment houses and private homes have indicated that their plans provide for the installation of such equipment. Sales of radio sets through stores in Canada have been many and are increasing, particularly for receiver sets.

Problems in Sewerage and Drainage

A Number of Interesting Problems Have Confronted the Extension of Sewerage and Drainage Systems in the Township of York—How These Problems Have Been Dealt With in the Largest Township in Canada

By H. HUGHES, Chief Sanitary Inspector York Township

THE TERM sanitation may be applied to cover all the works that can be made to contribute to the amenities of the people in connection with public health, and be broad enough to include sidewalks, sewerage disposal, sewerage, comfort stations, baths and other public utilities.

York township is probably one of the largest, if not the largest township in the Dominion. It has an area of about eight square miles. The southern portion of the township borders on the City of Toronto on the north side and on the west side, and has a frontier of about 14 miles. The suburban area adjoining the city measures about 12 square miles and is divided into water sections, "A," "B," "C" for the purpose of waterworks construction.

The magnitude of the district may be appreciated when it is stated that there are about 189½ miles of roadways in the above sections, making a total of about 376.8 miles of roads in the whole township. The roads therefore, in the suburban area are just one half the mileage of roads in the whole township, but it had roughly only one-seventh of the total area.

The northerly portion of the township is entirely rural. The growth of the population in the township of York, which for the most part is in the southern portion of it, has been great. During the years 1910 to 1921, it has grown as follows:

1910	11,561
1911	13,734
1912	216,224
1913	18,632
1914	24,340
1915	28,870
1916	32,105
1918	34,278
1919	37,772
1920	44,323
1921	50,856

The increase from 1910 to 1921 was over 340 per cent. despite the fact that several areas in the township were annexed by the City of Toronto.

Water Measured by Bulk Meters

The township council about seven years ago, applied to the City of Toronto for water supply, which was not granted at first. They applied for powers to the legislature. The results of the two appeals were unsuccessful but finally in the third appeal they were granted the necessary powers. Water taken from the City of Toronto is all measured by bulk meters at the different boundaries.

The laying of water mains was started in 1917, since when, 95 miles of mains have been laid, the sizes ranging from six to 24 inches in diameter. These were laid by the engineering department of the township of York, subject to the inspection of the city. The total number of consumers is about 25,000. About 7,000 connections of the services have been placed by the water dept. at the cost of the applicant, whilst the lead services from the street line to the buildings are laid by licensed plumbers who obtain a permit, to which reference will be made later on.

The mileage of paved roads in the township of York is comparatively small owing to the fact that only a small number of streets are sewered, and consequently no pavements can be laid until the sewers have been constructed. Total miles of paved road are 70. The mileage of sidewalks is 77. There are at the present time about 15 miles of sewers in the southern portion of the township. These connect to the city, for which a payment is made on the basis of about 23 cents per foot frontage. This figure is not a fixed one, but represents the bulk of them.

One of the great problems of the York township is its sewerage. It may be stated that the geographical position and topographical features of this locality are such that the logical outfalls for sewage effluent and storm water is in the bay. The natural slope of the land outside of a radius of five miles of the city limits is towards Toronto, excepting on the west side of the Humber. Pumping, of course, could be resorted to, but the cost of operation will thereby be increased, and it is therefore desirable to avoid pumping where possible, unless there are special reasons for the same.

Outfalls Located Near City Limits

Since sewers are ordinarily operated by gravitation, the outfalls in this locality are near or in the city limits, as the district becomes more densely populated, the problem of maintaining a satisfactory standard of sanitation, not only of the city and its environments but also of preserving the quality of the water supply, will become increasingly important. The need for sewerage in the outskirts of the city is a pressing one. Scarboro could discharge sewage or effluent into the bay, but by doing so, it would be necessary to locate the outfall so as to safeguard its own water supply on one hand, and the contemplated city's new source on the other. The township of York has no direct outlet to the lake, excepting at Swansea. The Don and Humber rivers, of course, are available. Leaside district discharges its effluent into the Don river and Weston into the Humber. Mimico and New Toronto effluent is discharged into the bay. The western portion of Etobicoke will some day discharge sewage effluent into the Humber river, and the western portion together with the township of Toronto and the village of Port Credit will discharge into the bay.

It would appear that the construction of several independent sewerage schemes and sewage treatment plants by several different authorities would be inadvisable, having regard to the expansion of the city and would be the antithesis of the city and regional planning.

City Refuses Further Extensions

Inasmuch as the City of Toronto has, from time to time, annexed portions of the township, it has at the same time.

AN INTERESTING POINT CONCERNING INCOME TAX

On receipt of a recent enquiry from a master plumber raising an interesting point in connection with the tax where stock in trade is sold at a discount by a firm ceasing to do business, Sanitary Engineer has secured the following ruling from R. Breadner, Commissioner of Taxation, Ottawa:

> **"You are advised that any firm ceasing to carry on business and selling its stock-in-trade to a purchaser at a discount, in so far as the discount results in a profit or loss to the vendor, it in no way affects the purchaser. The goods purchased are carried into the books to the purchaser at cost value, or the price paid therefor and at the close of the fiscal period the net result from the sale of the goods in relation to their cost, together with overhead expenses, is the profit in respect of which Income Tax is levied.**
>
> **"If the vendor realizes a profit upon the sale of the stock-in-trade although sold in bulk form, it is nevertheless liable to Income Tax if the profits be in excess of the statutory exemption."**
>
> **(Signed) R. Breadner,**
> **Commissioner of Taxation.**

closed the natural outlets of the township toward the lake. Applications have been made by the township of York to the City of Toronto for sewer outlets into the city system, so as to enable the township to construct sewers. A few of these were granted, but latterly they, the city authorities, have taken the attitude of refusing any further extensions. An application was made to the Ontario Railway Board for authority to connect to the city sewers, but that board adopted the city's recommendation that a comprehensive sewer scheme should be prepared by the township engineers. This work was taken in hand and a preliminary scheme submitted to the city. The township council appealed to the railway board, and this time the city advised them that provisions should be made for storm water sewer. This was done, but the city apparently found itself in a position of not being able to assist the township. The engineers, were therefore instructed by the township council to see what could be done in the way of preparing an independent scheme, which work is now in hand.

The natural slope of the country is either southeast or southwest and the difficulty in designing a scheme in these districts lies in the fact that the sewer will have to discharge in a different direction. When a scheme is designed it is proposed to submit the same, when ready, to the ratepayers to have their approval. It may be stated that negotiations with the City of Toronto have extended to over seven years. An application was made to the Ontario Government last year for powers to construct sewers in defined areas, but it was thrown out, and a similar application is being made this year, in the hope that it will go through.

About two-thirds of the 55,000 population of York township have public water supply, but less than one third are provided with sewers.

While the introduction of a public water supply always increases materially the quantity of sewerage requiring disposal in a city or town, it by no means follows that the introduction of a sewerage system is essential at once, upon the introduction of a public water supply. The need of sewerage in a populous district, varies with geological conditions and a good part of Rork township, where the porosity of the soil is satisfactory has been able to maintain satisfactory sanitary conditions, without sewerage.

Conditions Vary

There are some thickly settled portions of the township, however, in which it is nearly impossible to maintain proper sanitary conditions, at the present time, owing to lack of sewers. At best, it is usually necessary to clean out cesspools and septic tanks, at more or less frequent intervals, a process in itself involving a very considerable nuisance. It also often happens, but owing to an impervious soil, or to the saturation of the ground by the increasing quantity of sewage discharged into the cesspools or tanks in a growing community such as York township, in the spring time and at times of heavy rains at the other seasons of the year, sewage overflows from cesspools to the nearest water course, with the result that conditions are created which are likely to be injurious to health. Conditions are consequently very objectionable in the more densely populated portions of the township, which happens to be an impervious sub-soil, and it is impracticable to attempt to obtain relief by the enforcement of health regulations, until a proper sewerage scheme is first provided.

The plumbing inspection is partly in the same lines as in the City of Toronto, but I believe our duties are more varied. The following is short summary of what we have to do in respect to plumbing:—

1 Plumbers' licenses issued on the recommendation of the Plumbing Dept.

2 Registry kept of all plumbers.

3 Inspect all plumbing and drainage plans.

4 Grant plumbing permits, also permits for sewer connections.

5 Inspect all water fittings, and all sanitary work, in general, to take all necessary steps to replace condemned material, or work in order, and to charge cost against estate.

6 Recording of all inspections. Register and file same way.

7 Charge all fees in connection with plumbing and drainage.

8 Any defects in the consumer's water system is referred from the accountant's department to plumbing department for report.

9 Since March 1, 1922, the plumbing department acts in conjunction with the health board.

In all cases we recommend a syphon trush in preference to the continuous flow or seepage. But so far our by-law does not compel a syphon and in practice we find the following quantities for weeping tiles quite satisfactory, if laid 18 to 20 inches below grade:

In sandy or loose soil for the average six roomed house, 90 to 100 feet of three inch weeping tile. That is about 15 feet to a person.

In clay or heavy soil 40 foot per person, said tile laid on a six inch clinker bed under and over.

I would also like to draw attention to the advisability of licensing drainmen. We have insisted on drainmen taking out permits for all their jobs, and recently insisted in the plumbing work by-law that a clean-out be placed on each stack, so that the plumbing work may be tested apart from the drain work, and the drain work apart from the plumbing work, so that the plumber in future be not responsible for any drains unless laid by him.

Promising Outlook for Building Activities

Hope for Active Season Justified by Total for First Quarter. Residential Class of Building Prominent

WITH weather conditions now more favorable to outside construction, work is reported as showing progress. Figures for the first quarter have been compiled and show that $32,575,900 worth of fresh work has been undertaken in Canada up until the end of March. From an actual value standpoint these figures show a slight falling off from last year, but with the reduction in the prices of materials, which have been effected in the interval, they represent a larger volume of actual construction than a year ago. In point of number, too, nearly 50 per cent. more projects are represented than for the corresponding estimate in 1921. It has been felt for some time that both the country and the industry require more numerous undertakings, distributed over a wider area, and it is encouraging that the industry has been able to show development in this direction.

Dwelling Houses Predominate

The season is now far enough advanced to make it possible to gauge activity in the coming months with more accuracy, and from present reports the industry will devote a good amount of its time in the construction of dwelling houses. A scrutiny of the type of building being done, shows that residences account for approximately 35 per cent. of the above figures. Building of the larger class is more backward than last season, and it is here that the decrease in money value occurs. However, latest records reveal an improvement in this department. Industrial construction has been light up to the present, but prospects are brightening, and in several basic industries which have reported an entire absence of expansion for many months, it is found that contracts have now been let or plans called for on important work.

Labor Will Assist

While there is only a slight reduction in labor costs from one year ago, it is felt that the position of labor this Spring will also assist in a more extensive building programme. It now appears that most of last year's schedules will be renewed, but it is generally considered more gratifying to see contractors and workmen coming to terms early in the season, without the long protracted haggling which has held up operations at a critical period in previous years.

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights —Keep the Entire Series Where It May Be Referred To And Studied

Filter beds may be classified under two headings namely "Contact Beds" and "Percolating or Trickling Filters." The Contact Bed is generally constructed as shown in Figs. 69 and 70 which illustrate the plan and layout of three small sand filters and cross-section showing the arrangement of the filtering media and system of underdrainage and distribution. The three beds are controlled by a central distributing chamber from which the main pipes supplying the distributing pipes are connected. The depth of the bed varies from 4 to 6 feet and the filtering media should be graded from fine on top to coarse gravel at the bottom surrounding the underdrains. The sand acts as a strainer and collects all the fine suspended matter in solution and should be constantly replaced or rewashed, otherwise the capacity of the bed will decrease owing to the clogging up of the filtering material. The coarse gravel or broken stone acts as the purifier and is the home of the bacterial life. The filtering material must be sufficiently porous so as to permit percolation and ample artificial underdrainage should be provided so as to allow the sewage, after purification, to be rapidly drained off.

In calculating the size of artificial filtration beds it is the general practice to provide for 45 square feet for each person, or one cubic yard of filtering material for every 50 gallons of sewage.

In this class of Contact Bed provision must always be made for resting the filter from time to time as no contact filter can work continuously and produce good results without this rest, so that the filtration area should always be divided into 3 to 5 beds. Filter beds can be constructed cheaply out of the ground by sloping back the excavated sides. The filter bottom must be of some impervious hard soil and the underdrains laid as shown on Figs. 69 and 70.

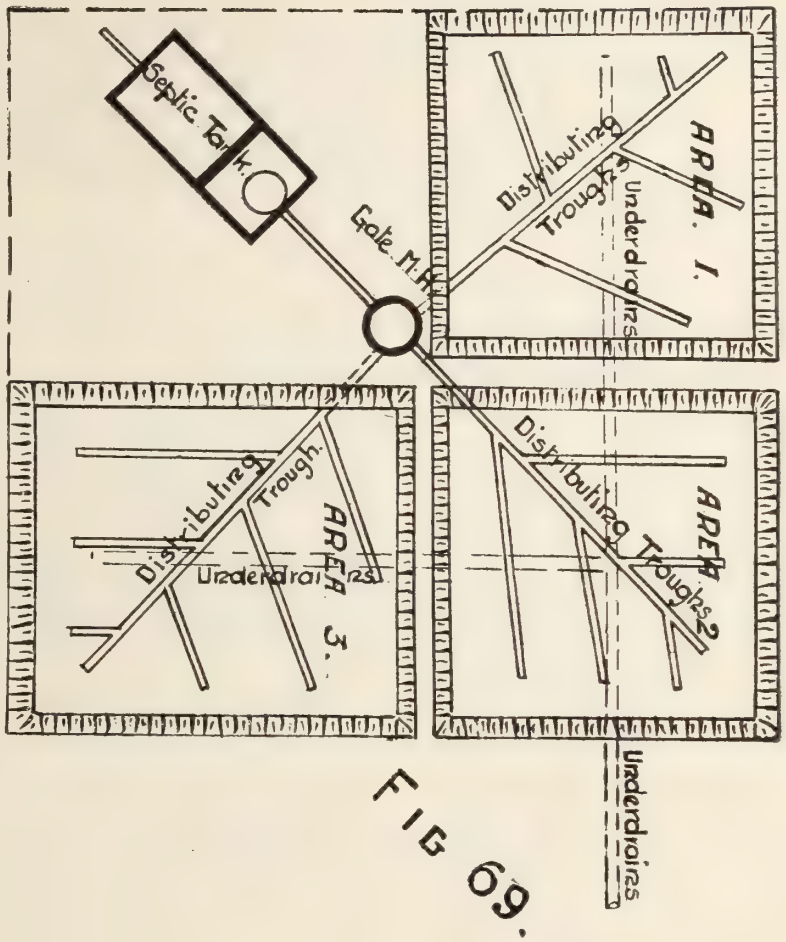


FIG 69.

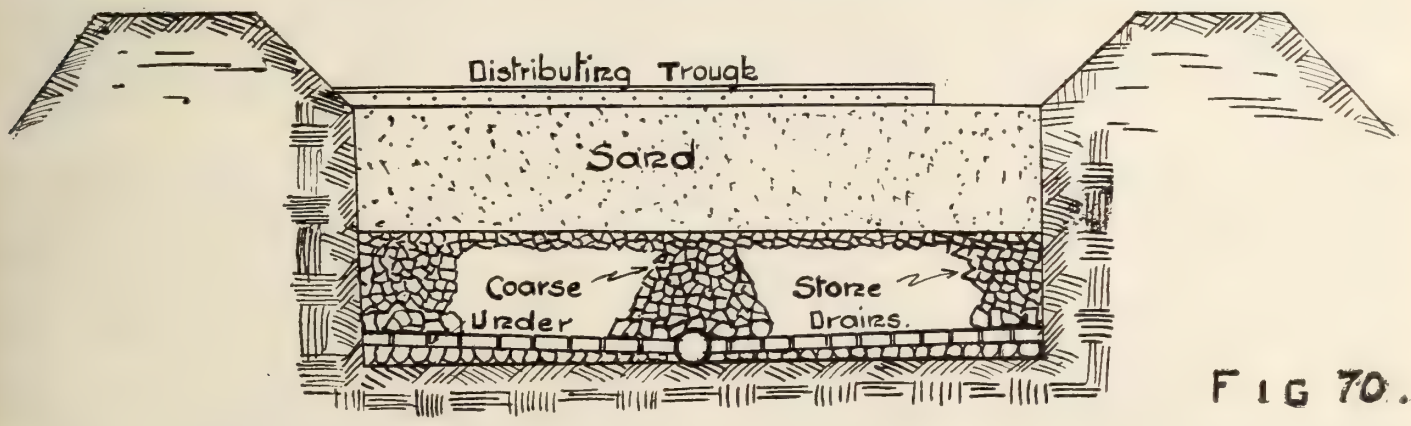


FIG 70.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

MOVES TO NEW LOCATION

Stratford, Ont.—Angus McDonald will move his plumbing business to new premises shortly, the Dominion Specialty Co. having purchased the building in which he was formerly located.

OBITUARY

John Jamieson, aged 55, a lifelong resident of Kingston, Ont., and who has conducted a plumbing business here for some years, is dead.

WILL CALL TENDERS

R. E. C. Kent, chairman of the board of management of the Kingston General hospital, states that tenders will be called for in the course of a month for the new isolation building.

OAKVILLE INSTALS PUMPING EQUIPMENT

Oakville, Ont.—The Oakville Town Council decided to go ahead with the installation of an auxiliary pumping plant at an estimated cost of $32,000. The plant will be operated by gasoline engines and will supply street and house lighting and water for fire protection and use in the home if the residents exercise reasonable care in consumption.

WESTERN ONTARIO NOTES

J. Scott, 56 Grand Ave., London, wants prices on hot air heating, plumbing and electrical work for new $5,000 residence.

Noble & Rich of London, Ont., have been awarded contract for heating and plumbing for new $10,000 residence for Charles Clark.

F. W. Clarke, 15 Hume St., London, Ont., wants prices on hot air heating, plumbing and electrical work for new $6,000 residence.

J. C. Waide, 1010 Adelaide St., London, Ont., wants prices on hot air heating, plumbing and electrical work for new $5,500 residence.

Butler Woollen Mill Co., Strathroy, Ont., are preparing plans for new mills to cost $25,000 and will be interested in heating, plumbing and electrical equipment.

Plans are being prepared by architect W. G. Murray, Dominion Savings Building, London, Ont., for new $8,000 residence for C. Aberhardt, Seaforth, Ont. Prices wanted on hot-air heating, plumbing and electrical equipment.

DEMANDS IMPROVEMENT OF WATER SUPPLY SYSTEM

Goderich, Ont.—At the instance of the Provincial Board of Health, Sheriff Reynolds has served on the civic authorities a formal order demanding the improvement of the town's water supply system. This is the latest move in a quiet contest which has been going on between the municipality and the Provincial body for some months.

NIGHT SCHOOL FOR PLUMBERS

The Montreal Builders' Exchange has learned from the authorities of the Technical School that plans have been made to start a night course in plumbing next September. The principal suggests that a committee of plumbers be formed to confer with the authorities of the school as to the formation of such classes, so that the course may be purely along practical lines. It is hoped by local plumbers that the plan will meet with success from the standpoint of both attendance and interest taken, as well as beneficial results to all those participating.

IS SEEKING EMPLOYMENT

A plumber has written to Sanitary Engineer concerning opportunities for employment. He is of French nationality and states that he has in the past been slightly handicapped since living in Canada through an imperfect knowledge of the English language. However, he states the difficulty is now overcome and he states that he feels convinced that he can meet the requirements of a master plumber at any job from wiping any kind of joint to computing radiation for a building of medium size. If unable to obtain a position as journeyman he would go as a helper in a city or country town. He can supply references as to knowledge of the trade. Any letters concerning this matter will be passed to the applicant if addressed to The Editor of Sanitary Engineer, 143 University Ave., Toronto and marked (re applicant for position).

POOR PLUMBING IN WOODSTOCK

Woodstock, Ont.—The idea of having proper inspection of the plumbing in the city has again come up for some discussion. The Board was of the opinion that if the members of the council really understood the board's attitude in the matter they would come to view the matter in its proper light. It was pointed out that there was a considerable amount of bad plumbing done in Woodstock, which might have been avoided had there been proper inspection at the time it was done. While the board did not favor the creation of a high salaried position for a plumbing inspector, it believed that some action should be taken which would be a protection to landlords who themselves were unable to say whether the plumbing was being properly installed in their residences, etc. In connection with the discussion of the plumbing question the fact was stressed that often the trouble lay in faulty sewer construction.

SECURED CONTRACT THROUGH SANITARY ENGINEER

A. Sachs and Sons, sanitary and heating engineers, Mitchell, Ont., have been successful in closing the contracts for electric wiring, heating, plumbing and sheet metal work for Dr. L. Moffat's $7,000 summer residence at Varna, having got in touch with this work through Sanitary Engineer. This firm also have contracts for remodeling heating and and plumbing in Royal Hotel, Mitchell.

WILL REPAIR WATERWORKS SYSTEM

Chatham, Ont.—More time worn discussion in connection with whether Chatham will have a good water supply or still retain its "chlorine cocktails" was indulged in by the members of the Water Board at their regular meeting, finally resulting in the superintendent being empowered to secure tenders for the suggested improvements to the present plant as outlined by the Povincial Board of Health.

A diagram of the proposed alterations was submitted by Engineer Dallyn of the Provincial Board with an estimated cost of eight thousand dollars as compared with that of five thousand formerly given.

City Engineer Fuller stated that he was in favor of these alterations, but that he would not care to guarantee safe chlorination as a result of them, but that he thought they would materially assist in securing good water.

Chairman W. H. Westman strongly objected to spending any more money on the old water works.

After a continued discussion of the matter it was finally decided to secure tenders for the suggested alterations.

WESTERN ONTARIO NEWS

Arthur Wright, Glencoe, Ont., wants prices on hot air heating, plumbing and electrical work for new $3,800 residence.

Trustees of S. S. No. 6, Goldstone, Ont., Ralph Close, secretary, want prices on hot air heating for new $10,000 school.

James Ferguson, Forest, Ont., wants prices on hot air heating, plumbing and electrical work for new $4,000 residence.

John A. Brownlee has returned after spending several months in the South and is considerably improved in health.

Frank Rheaume, of St. Joachim, Ont., has taken a position as clerk in the Reid Hardware store at Comber, Ont.

R. Garner, 567 Oxford St., London, Ont., wants prices on hot air heating, plumbing and electric work for new $3,800 residence.

H. W. Sutherland, Embro, Ont., wants prices on heating, plumbing and electrical equipment for new $5,000 residence for which plans are being prepared.

Dr. George McNeil, 245 Queen's Avenue, London, wants prices on hot water connection with remodelling of building.

Dr. Bean, 228 Wharncliffe Road, London, wants prices on hot-air heating, plumbing and electrical work for new $7,000 residence.

Tenders will be called about June 1, for new $50,000 residence at London, Ont. for John E. Smallman, Elmwood Avenue. Watt & Blackwell architects. Prices wanted on steam heating, plumbing and electrical equipment.

L. G. Bridgeman, Bank of Commerce London, Ont., is preparing plans for $12,000 residence for I. Taylor, 765 Wellington St. Prices wanted on hot water heating, plumbing and electrical equipment.

Plans are being prepared by Architects Watt & Blackwell, Bank of Toronto, London, Ont., for $25,000 building for Geo. A. Logan to be used as residence and undertaking parlours. Prices wanted on hot air heating, plumbing and elecrtical equipment.

Architect W. G. Murray, Dominion Savings Building, London, is preparing plans for a new bath house for the London Health Resorts Co. Prices wanted on steam heating, turkish bath equipment, lavatories and general plumbing and electrical work. Estimated cost $60,000.

CANADIAN MATERIALS FORCE DOWN PRICES IN ENGLAND

The arrival of housebuilding necessaries from Canada, particularly pipes, has helped to produce a palpable fall in the cost of housebuilding here in England. The Ministry of Health is making contracts in the neighborhood of £400 for houses which used to cost £1,400. The trade rings here have visibly collapsed. There are also large savings in the cost of housebuilding through the importation of tiles from Marseilles, France.

Tinsmiths' Status is Still Indefinite

Judgment Just Rendered in Favor of Retailers in Government Case Against a Job Printer Would Seem to Make Clear Cut Status for Tinsmiths—Expect Early Ruling on This Point

By Ottawa representative of Sanitary Engineer

OTTAWA, Ont.—The retail trade as a whole, including hardware merchants and tinsmiths, are at present at sea as regards the operation of the sales tax and the government's proposals in that direction, so an outline of the situation is timely. When the present Sales Tax Act was placed on the statute books of the Dominion Parliament, it clearly was not intended that a sales tax should be collected from retail merchants. During the carrying out of the operations of the Act by the Department of Customs and Excise the officials of the department, however, included a number of retail merchants in it and called upon them to pay a sales tax as manufacturers.

The principal ones included hardware merchants, tinsmiths, electrical dealers and contractors, etc.

Objection was made by the Retail Merchants' Association of Canada to the action of the department and in order to test the validity of the Act a suit was taken by the Government against Messrs. Pedrick and Palen, merchant tailors, Ottawa. The case came before the Exchequer Court and Judge Audette gave judgment in favor of the retailers. Following this judgment the Act was amended by adding a clause which excluded all those retail merchants who made goods to the order of their customers.

Retailers Again Win

Another suit, however, was instituted by the Government against P. Karson, confectioner, Ottawa, and Judge Gunn of Ottawa rendered judgment in favor of the retailer. A further case was taken against Mr. Karson in the Exchequer court and judgment was rendered in favor of the Government. The amount in dispute was about $200 and the court costs were $409, not including the solicitors' costs on both sides. An appeal was taken by the Association against this judgment just recently to the Supreme Court, but the court having the right to decide whether to go on with the case or not if it is less than $500, decided not to take it up, important and all as the issue was.

While the above cases were proceeding, another case was taken by the Government against Messrs. Aunger and Robertson, Limited, job printers in Saskatoon, Saskatchewan, who are also members of the Retail Merchants' Association. This was a case wherein the Government claimed that a job printer who printed articles for stock or for sale in his retail store was subject to a sales tax. The Retail Merchants' Association who defended the case, contended that they had no right to pay a sales tax, and the judge decided in the retailer's favor. This judgment has just been rendered.

Little Excuse for Taxing Tinsmiths

In rendering this decision, Judge McLeod said: "On the facts agreed on in this case by counsel, and they appear to me sufficient for the purpose in question, I am of the opinion, following the judgment of the King vs. Pedrick and Palen, that the defendants are not liable; and the only doubt I have in mind was caused by the fact that in the Regulations the nature of the business carried on by the defendants, namely that of job printers, is given as an illustration of the status of manufacturers. It appears to me, however, from the judgment to which I have referred that the defendants cannot be said with any degree of real accuracy to be manufacturers within the meaning of the Act."

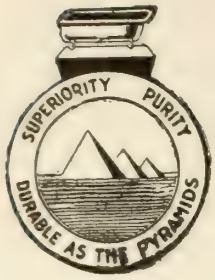
This being the view taken in regard to job printers, there does not seem to be the least excuse for the Government calling upon tinsmiths to pay the manufacturers' tax, as they are in exactly the same position as the job printers.

Owing to the uncertainty of some of the clauses of the Act, merchants in general are hopeful that it will be amended during the present session of parliament so as to avoid any further litigation or uncertainty. Retail merchants as a class do not object to pay any portion of their fair share of taxation; in fact they pay the largest share of any class in every municipality, and all taxes that are paid to the Government by manufacturers or importers are passed on to the retail trade and in fifty per cent. of their purchases and sales they are unable to collect it but are forced to absorb it in their overhead expenses. They say their chief desire is to see that all systems of taxation are levied equitably.

SUIT AGAINST SMITH'S FALLS BY PROVINCIAL HEALTH BOARD

Smith's Falls, Ont.—An important question was before the police court when the Provincial Board of Health sued the town for a penalty of $100 a day since May, 1920, for failure to obey an order to instal a filtration plant.

W. McCue, town solicitor, argued that there was no evidence showing a resolution of the Provincial Board or that any authority had been given for the order. He also stated that the Council, which had been deliberating the best way to secure pure water, were going to have alternative plans prepared for submission to the Board.



Ever Build

OF COURSE you do. Every man with red blood coursing through his veins builds air castles, has pipe dreams, day dreams or whatever you like to call them, in which he is the central figure. Where is the Sanitary Engineer who has never settled down after a substantial meal in a comfortable arm chair, lit his pipe and indulged in a quiet smoke during which his imagination conjures up all sorts of novel schemes for going after business.

Port Hope

Vancouver Office:
325 HOWE ST.

Factor
PORT HOPE,

Air Castles?

At such times nothing seems impossible. No sale is so difficult that his ingenuity does not find some way to surmount it—no argument can be brought forward that he cannot overcome.

Psychologists tell us that this is our real self showing itself, that we can by persistent and intelligent effort accomplish these things in actual practice.

In every district, thousands of dollars worth of work is waiting for the man who will win it by intelligent and aggressive sales methods.

And that's where the Port Hope Advertising service will be found of wonderful assistance. Well planned attractive booklets, circulars, blotters and advertising cuts for use in your local papers will all help to bring the prospect for plumbing fixtures to your door or prepare the way for your personal call. We have had all these prepared for your use. Will you use them?

nitary Mfg. Company, Limited

Head Office:
1204 ROYAL BANK BLDG., TORONTO

Winnipeg Office:
405 TRIBUNE BLDG.

Montreal Office:
301 SOUTHAM BLDG.

"Tout Passe"

(Everything Changes)

THE FRENCH have a proverb which begins "*Tout passe*" (Everything changes). This contains the germ of an idea which should be good medicine for the business man who is inclined at the present time when trade is quiet to rest on his oars and delay making preparations for the busy period until that period actually arrives.

Everything in this world is continually changing. Some philosophers even tell us that there is no present; there is only the past and the future; the past is gone and to-morrow, even the next hour, the next minute, are in the future. And in the future only one thing is certain, that is, change.

So conservative is human nature that the great majority instinctively assume that whatever conditions exist at the moment must continue to exist for some time to come. The direct contrary is, of course, the case. The philosopher knows that whatever else may happen one thing is certain, viz., whatever is, is not going to continue.

Why is it that only the few can make money in stock exchange speculation? Because the ordinary man waits until prosperous times appear to him to have become established and to have become a permanent institution before he buys. And in most cases he then finds he has bought at the top of the market. On the other hand, when things are at their lowest and he could buy with a prospect or almost a certainty of profit, everything appears to him black and he cannot see any likelihood of change. The shrewd operator, however, knows that when things look at their worst it is time for them to mend. This is the time he chooses for buying and when everything is booming is the time he picks for selling.

We may not be on the eve of a big boom, but one thing is certain, things are not going to remain as they are for long.

Now is the time when shrewd and far-seeing men are preparing for prosperous times. They are making preparations so that opportunity may not take them unawares. They see that now is the time to cultivate trade and make their products known so that when the tide of prosperity is on the flow they may be in a position to take advantage of it and reap the benefit of their foresight.

If anyone tells you we are in for several years of business depression, take heart and be assured that this is a sign we must be nearing better times.

In the spring of 1918 many well-informed men predicted three further years of war. The war ended that autumn.

In 1920 many business men spoke of three or four more years of prosperity. The prosperity wave was even then on its ebb.

These men like the great majority did not realize that everything changes. Are you going to place yourselves among their number, or are you going to rank among the minority and bear in mind the proverb—*Tout passe?*

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

THE MARKETS AT A GLANCE

CURRENT price changes on plumbing and steam-fitting materials centre around the revision in discounts recorded on bath compression cocks and brass steam cocks. These products now appear with easier quotations and similar changes have been announced on both square and hexagon head cap screws and set screws. Nickel and nickel specialties now reflect lower prices. Little variation in price is apparent on other primary sanitary and heating supply markets, the general developments being confined to the trend of improvement recorded in the movement of different products at this season. However, Eastern distributing centres now report a slight upward revision in soil pipe discounts, this change now placing quotations on these products nearer to a uniform basis. The strength recently apparent in the steel industry, is being more or less reflected in the market tone on numerous finished steel products, and indications of higher quotations are developing on domestic quarters. Scrap materials record a slightly firmer tone, while increased interest in such metals as spelter, tin, and antimony, has improved certain ingot markets. The effect of the steel situation on specific products, is apparent in the firmer tone on corrugated sheets, eavestrough, conductor pipe, wrought piping, and similar lines. The warmer weather has induced the shipment of seasonal goods, while general activity is now indicated in the improved reports from many sections of the trade.

MONTREAL MARKETS

MONTREAL, April 29.—Price developments are again recorded on the current markets for plumbing and steam-fitting supplies, and lower quotations on compression bath cocks and brass steam cocks provide an outstanding change. Bath cocks are now quoted less 41 per cent., while steam cocks have a new discount of 50 per cent. off. Through a revision in discounts, both cap and set screws have new lower prices. A change in the opposite direction is noted on certain sizes of soil pipe, when 2, 3, 5 and 6 inch pipe are slightly advanced in price. The 4 inch pipe and all sizes of fittings remain at former discounts. The stiffening tendency in prices on many lines of iron and steel products is still apparent, although there is no change in any of the quotations. A general improvement both in demand and consumption continues a feature of the industry, while the coal strike has assumed greater importance in the matter of strengthening the price situation. Trade in general is making further progress, and lines pertaining to the building industry are becoming more active.

LITTLE BETTER FEELING IN SCRAP MARKETS

Montreal.

Local dealers in scrap metals and other waste materials state that a slightly better feeling now exists in the market, and an improvement in lines of iron and steel is noted. Although this betterment is only of a very moderate nature up to the present it is taken as a hopeful sign after the past quiet months. The opening of export trade is now stated to be the factor that must be looked to for any marked improvement in the scrap situation. If European countries can enter the market this season to a greater extent than has been possible in the last few years, scrap will again become active after the long drawn out period of quietness. Although the effect of the coal strike on the steel industry may have a tendency to stiffen prices, on certain lines of scrap, there is no indication of any firmness from this factor up to the present, and following are nominal quotations:

SCRAP—	
Automobile Tires	0 50
Rubber Shoes	0 02¾
Yellow brass	0 05
Red brass	0 08¼
Light brass	0 03½
Scrap zinc	0 03
Lead, heavy	0 04
Lead, tea	0 02
Light copper	0 08
Heavy copper	0 10
Wrought iron, R. Rd., No. 1 per gr. ton	9 00
Malleable scrap (ton)	8 00
Pipe scrap (ton)	6 50
Heavy melting steel	6 50 to 7 00
No. 2 busheling	3 00
Boiler plate	7 00
No. 1 machinery cast	20 00

BATH AND STEAM COCKS HAVE REVISED DISCOUNTS

Montreal.

Revisions are again made in the discounts on certain lines of compression goods, and lower prices now appear on compression bath cocks and brass steam cocks. The discount on the former is changed from 38 per cent. to 41 per cent., and standard steam cocks are now quoted at 50 off, the former discount being 43 per cent. Distributors of these products state that current trade is gradually improving, and is apparently following the trend of building activities. New construction is evident from week to week, and as this advances, the more extensive use of valves, bibbs, and other compression works, will be necessary. Following are present discounts, with the revision on the above two lines noted:

Compression work, standard	45%
Fuller work, standard	30%
Quick opening compression bibbs	43%
Bath cocks, quick opening	41%
Bath cocks, compression	41%
Basin cocks, quick opening	46%
Flatway stop and waste cocks, standard	54%
Roundway stop and waste cocks, st'nd'rd	46%
Brass steam cocks, standard	50%
Radiator valves, standard	58%
Do., removable discs	58%
Globe, angle and check valves, standard	25%
Gate or straightway	25%
Emco globe valves	33%
Emco check valves	33%
Jenkins globe, angle, check and swing check	19%
Jenkins gate or straightway	25%
Jenkins iron body, globe and angle	15%
Jenkins iron body, gate	33%
N.P. "P" and "S" traps	40%

CAP AND SET SCREWS REDUCED IN PRICE

Montreal.

Through a revision in discounts, square and hexagon head cap screws and set screws show a reduction in prices. The former are quoted less 55 per cent., while set screws will now sell at less 60 per cent.

(Continued on page 26)

MONTREAL MARKETS

(Continued from page 25)

SLIGHT ADVANCE IN SOME SIZES OF SOIL PIPE

Montreal.

Discounts on 2, 3, 5 and 6-inch soil pipe are changed from 47½ per cent. to 45 per cent. The best selling size, 4-inch, and pipe fittings are unchanged at former levels. This slight advance on certain sizes is being quoted by most jobbers, although there are a few who are maintaining former lower quotations.

For some time past current quotations on these products have been considered low. The last reduction, made some time ago, was claimed to be necessary because of outside competition, and market conditions did not warrant easier prices at that time. Business in these lines gradually improves with the trend of activity in building circles, and a fairly active season is expected to follow. Revised discounts are the following:

SOIL PIPE—	
2 and 3 inch	45%
4 inch	50%
5 and 6 inch	45%
Fittings—	
2 to 6 inch	50-10%

EAVESTROUGH TRADE AGAIN MORE ACTIVE

Montreal

Current business in eavestrough, conductor pipe and sundry lines is again described by manufacturers and distributors as improved. The improvement of these products has been more or less spasmodic during the earlier spring, and in recent weeks trade was reported as somewhat duller than in weeks previous. With conditions, such as low dealer stocks and favorable weather, a continued improvement is looked for in the ensuing weeks. Quotations are unchanged, and following are list prices and discounts:

EAVESTROUGH—
in., $16.90; 10 in., $18.70; 12 in., $22.20; 15 in., $29.80; 18 in., $37.80.

O.G. Square bead, per 100 ft.: 8 in., $15.90; 10 in., $17.70; 12 in., $21.20; 15 in., $28.80; 6 in., $36.80.

Discount 70|10 per cent.

Conductor Pipe, Round. Plain and Corrugated, per 100 ft.: 2 in., $18.40; 3 in., $23.80; 4 in., $29.60; 5 in., $40.00; 6 in., $49.00.

Discount 70|10 per cent.

CONDUCTOR ELBOWS—
Plain or corrugated, price per doz.
2 in., $5.25; 3 in., $6.00; 4 in., $10.50; 5 in., $24.00; 6 in., $29.00.

Discount 60 per cent.

METALS REFLECT FIRMER TONE IN LEAD PRODUCTS

Montreal.

Manufacturers of lead and zinc products state that business in these products is slowly developing along satisfactory lines, and each week shows a slightly better movement. Building activity is now reflecting on many of these lines, especially those more extensively used by plumbers in new building installations. The tone of the market is described as somewhat firmer since the revision of a few weeks ago. Since that date lead on primary markets has been reported stronger, while tin has made extensive advances in recent weeks. Insofar as solders are concerned, copper seems a little backward but the markets on the whole are much improved. Unchanged quotations are as follows:

LEAD AND ZINC PRODUCTS—	
Lead pipe, per 100 lbs.	12 00
Lead waste, per 100 lbs.	13 00
Note—Lead pipe is subject to a discount of 10%	
Lead traps and bends	17½% off.
Lead wool, lb.	0 13½
Lead sheets, 2½ lbs.	0 10
Lead sheets, 3 to 3½ lbs., sq. ft., lb.	0 09¾
D., 4 to 8 lbs., sq. ft.	0 09
Cut sheets, ¼c. lb. extra and cut sheets to size, ¾c. lb. extra.	
Solder, guaranteed, lb.	0 25½
Do., strictly, lb.	0 23½
Do., commercial, lb.	0 20½
Do., wiping, lb.	0 21½
Do., wire, lb.	0 33½
Zinc, sheets, casks	0 11
Do., broken lots	0 11½

PIPE FITTING TRADE GRADUALLY IMPROVES

Montreal.

With quotations remaining at former discounts, trade in pipe fittings is said to be gradually improving. Orders are mostly for small quantities still, but are quite numerous, bringing the average volume to fair proportions. Unchanged prices and discounts are the following:

PIPE FITTINGS—	Per Cent.
Cast iron fittings	30
Bushings, cast	32
Bushings, malleable	32
Flanges	40
Plugs	30
Flange unions	30
Malleable unions	47
Dart unions, black	33
Do., galvanized	13
Nipples, ⅛ to 4" close and short	60
Do., long	65
Do., 4½ to 8" close and short	50
Do., long	55
Couplings, 4" and under	30
Do., 4½" and larger	10

Pound Goods —	Blk.	Galv.
Class A	0 54	0 67
Class B	0 20	0 28
Class C	0 13	0 20

ACTIVITY IN RANGE BOILERS ANTICIPATED

Montreal

Current business in range boilers is described by manufacturers and distributors as progressing along more satisfactory lines, a gradual improvement now being noted with the advancing season. With an active building program for the ensuing months, especially of the dwelling house type, sales of this product should continue to show increased volume, and a more optimistic outlook is forecast. Dealing with quotations on range boilers, one local dealer stated that there was practically no change from conditions which existed some months ago, and both list prices with discount and net prices are being quoted. Between the two, however, there is little variation, and this factor is not as disturbing as it was earlier in the year.

RANGE BOILERS:—	
5 Gallon	$13.50
12 "	14.00
18 "	15.00
25 "	16.00
30 "	17.50
35 "	20.50
40 "	22.75
52 "	38.00
66 "	60.75
82 "	74.00
100 "	103.00
120 "	117.00
144 "	164.00
168 "	187.00
192 "	210.00

Discounts, Standard weight, 50 per cent.
Extra Heavy, 40 per cent.

FIRMER UNDERTONE IN WROUGHT PIPE PRICES

Montreal.

Local manufacturers of wrought iron and steel piping describe the present tone of the market as somewhat firmer, although the strength is not yet of such a marked nature as is evident in many other lines of steel products. In other words they state that there is no present indication of a revision in prices, and the market is fairly steady with list No. 54 the selling basis. Current business is now making favorable progress, sales showing a gradual increase as the weeks pass.

Price List No. 54. December 22, 1921.

Standard Buttweld Pipe S/C
Per 100 feet.

Size	Steel Blk.	Steel Galv.	Gen. Wrot. Iron Blk.	Gen. Wrot. Iron Galv.
⅛ in.	$ 6 00	$ 8 00	$	$ ....
¼ in.	3 84	5 94	7 20	9 30
⅜ in.	3 84	5 94	7 20	9 30
½ in.	4 85	6 46	7 31	8 93
¾ in.	5 87	7 71	8 86	10 70
1 in.	8 16	11 05	12 58	15 30
1¼ in.	11 04	14 95	17 02	20 70
1½ in.	13 20	17 88	20 35	24 75
2 in.	17 76	24 05	27 38	33 30
2½ in.	28 08	38 03	.....	.....
3 in.	36 72	49 73	.....	.....
3½ in.	47 84	63 48	.....	.....
4 in.	56 68	75 21	.....	.....

Standard Lapweld Pipe S/C
Per 100 feet.

Size	Steel Blk.	Steel Galv.	Gen. Wrot. Iron Blk.	Gen. Wrot. Iron Galv.
2 in.	$21 46	$27 38	$31 08	$37 00
2½ in.	31 50	40 05	46 80	55 16
3 in.	41 31	53 55	61 20	73 44
3½ in.	48 76	65 32	72 68	89 24
4 in.	57 77	77 39	86 11	105 73
4½ in.	66 04	86 36	1 04	1 24
5 in.	76 96	100 64	1 21	1 45
6 in.	1 00	1 31	1 57	1 88
7 in.	1 33	1 76	2 02	2 45
8L in.	1 40	1 85	2 13	2 58
8 in.	1 61	2 13	2 45	2 97
9 in.	1 97	2 59	2 97	3 59
10L in.	1 82	2 40	2 75	3 33
10 in.	2 35	3 09	3 54	4 28

STEADY TONE IN COTTON WASTE PRICES

Montreal

A steady tone continues in the cotton waste markets, raw cotton showing little change in recent weeks. Current business is reported as fairly good, and following are unchanged local quotations:

COTTON WASTE--Cream polishing, 18c. per lb. White—XXX extra, 16c.; XX grand, 15c., XLCR, 14c.; X Empire, 13c.; X press, 11½c.

Colored—Fancy, 13½c; Lion, 12c; Popular, 9c; Keen, 7½c.

Wool Packing—Arrow, 25c; Axle, 22c; Anvil, 18c.

Dominion Wipers—White cotton, 20c; colored cotton, 14c.

SHEET MARKET STILL DESCRIBED AS FIRM

Montreal.

There is no change in local sheet quotations, although the market in most lines continues firm, and according to certain distributors, who have predicted advance prices, developments in the near future would not be surprising as the situation has lost none of its recent strength. The coal strike, with delayed deliveries and lower stocks resulting, is now looked upon as the factor to produce any movement in an upward direction, as strength resulting from a more active demand is said to be not sufficient up to the present to increase prices. Insofar as the English market is concerned, local importers claim that higher price levels, recently announced there, would undoubtedly have a stiffening effect on

prices here when navigation enters this port in a more extensive way. Unchanged nominal price levels are as follows:

BLACK SHEETS—		
10 gauge	4 00	4 50
12 gauge	4 10	4 60
14 gauge	4 40	4 70
16 gauge	4 50	4 80
18-20 gauge	4 55	5 05
26-gauge	4 60	5 20
22-24 gauge	4 65	5 25
28 gauge	4 75	5 35
GALVANIZED SHEETS—		
10¾ ounce	6 65	7 10
28 gauge	6 25	6 70
26 gauge	5 95	6 35
22-24 gauge	5 80	6 10
20 gauge	5 65	5 95
18 gauge	5 65	5 85
16 gauge	5 50	5 80
14 gauge	5 35	5 75
12 gauge	5 20	5 75
10 gauge	5 10	5 75
English Standard—	Queen's Head.	Fleur-de-lis
28 gauge	7 00	6 75
26 gauge	6 75	6 50
24 gauge	6 15	6 10
22 gauge	5 80	5 65
18-20 gauge	5 10	5 50

NOTE—These prices are for full bundles; an extra charge of 25c to 35c per 100 lbs. is made for broken lots. Extra for sheets 4 ft. wide, 50 cents per 100 pounds. Extra for sheets 3 ft. wide, 28 ga. and 10¾ oz. 25 cents per 100 lbs.

CANADA PLATES—	
Dull.	
18 x 24 x 52s	5 60
18 x 24 x 60s	5 80
18 x 24 x 75s	6 10
WELSH CANADA PLATES—	
Polished.	
18 x 24 x 52s	7 75
18 x 24 x 60s	8 00
BRIGHT TIN PLATES—	
28 x 28 x 100 lbs., bases	15 50
20 x 28 IC., 112s	16 00
20 x 28 IX., 112s	18 00
20 x 28 IXX, 56s	10 25
20 x 28 IXXX, 56s	11 00
TERNE PLATES—	
20 x 28 IC, 112s	15 00

CORRUGATED SHEETS HAVE FIRMER UNDERTONE

Montreal.

Little or no change has developed in the market for corrugated sheets in the past two weeks. The demand is still on the road to improvement, and the later spring and summer months should bring a fairly active movement in these lines, according to local distributors. With the stiffening of prices in the flat sheets, and other steel products, the undertone of corrugated sheets continues on a firm basis. For the present, however, following are list prices at discount:

CORRUGATED SHEETS—	Per 100 sq. ft.
No. 28 gauge	6 50
No. 26 gauge	7 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50

Less 10 per cent.

Lighter than 24 gauge and wider than 27 inches, 75c a square extra.

COAL STRIKE AFFECTS STEEL SITUATION

Montreal.

The steel situation is now a matter of great interest amongst local manufacturers and distributors. The market is described as decidedly firm, and although higher prices on bar iron and steel were thought likely before this date by some dealers, there is no change in the local quotations up to the present. These same informants, however, are still firm in their idea, and state that apart from a stronger tendency because of a better demand, the coal strike will gradually have a more direct bearing on the situation.

It is pointed out by others that mills in some instances have not been hampered and advices are to the effect that production will not be disturbed for some weeks yet. It is admitted, however, that warehouses are carrying heavier stocks than formerly in anticipation of the possibility of future delays in deliveries. In the meantime prices continue to stiffen at primary centres with demand losing none of its recent improvement. Following are unchanged local quotations:

IRON & STEEL—	
Common bar iron, 100 lbs.	2 65
Refined iron	4 15
Iron finished machinery steel	2 70
Mild steel	2 65
Single reeled machinery steel	4 75
Band steel	2 65
Spring steel	4 25
Sleighshoe steel	2 65
Tire steel	2 85
Toe calk steel	3 55
Harrow tooth steel	2 80
Mining tooth steel, per lb.	0 21½
Black Diamond tool and cast steel	0 21½

NOTE—Refined iron is approximately $1.50 per 100 lbs. over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs. extra.

ENAMELED WARE SALES RECORD IMPROVEMENT

Montreal

The predicted improvement in the various lines of enameled ware is now being felt to a degree, the movement having improved in the past two weeks. Building construction is showing favorable progress, thus demanding greater supplies of these products. Current discount of 33-1/3 per cent. generally governs purchases, and the price situation is said to be a little more settled than formerly. List prices and discount are as follows:

Sinks, roll rim—			
18 x 30			$23 00
Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$ 7 50	$ 7 40	$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide			51 40
Bath tubs, 5½ feet			57 10
Lavatories—			
17x19 in. Apron F139 or P4045			15 30
18x24 in. Apron F154 or P3845 or P3847			23 60
18x21 in. Apron F169 or P4205			17 60
17x19 in. Roll rim, F241 or P4345			12 60

Less 33 1-3 per cent.

STRENGTH IN LEAD FEATURES METALS

Montreal.

The tone of the metal markets is described as generally satisfactory, the two metals showing most strength being lead and zinc. While the advance in price has not as yet been followed by any marked increase in consumption locally, this will probably follow in due course.

TIN.—This has been somewhat irregular in London, but remains above the £150 mark. Opinions differ somewhat as to this metal, but stocks are no doubt gradually being lessened and while it is not thought likely that there will be any immediate advance to any extent, it should ultimately work to higher levels. Locally supply is none too ample with the market firm at 35 cents.

COPPER.—New York is rather quiet but the feeling is fairly good, and there seems no pressure to sell. Producers are firm in their ideas of about 13 cents delivered. London shows little change, and there is no immediate sign of any particular change in either direction. The market locally is slightly firmer at 17 cents, for electro and 16½ cents for casting.

SPELTER.—This metal continues to advance, and the position seems quite sound. East St. Louis is well over the 5 cent mark for spot, and futures command a premium. The London market is also quite firm and supplies available are evidently not large. Local market is firm at 17¾ cents.

LEAD.—Lead continues to show strength, and the American market has now advanced almost one cent per lb. in about six weeks. The trust prices are again advanced this week. London is also firm, and metal has been exported from London to the U. S. A. showing scarcity of spot metal on this side. Locally this metal is quoted higher at 7 cents.

ANTIMONY.—Antimony is quiet with little changes in prices, although outside markets indicate that there is a little gain being made. Quotations remain at 6½ cents for Chinese, and 7½ cents for high grade English.

ALUMINUM.—The movement of this metal is still slow, and little or no change is reported in the market. It is still quoted at 24 cents locally.

DEMAND FOR CLOSETS ALSO SLIGHTLY IMPROVED

Montreal

Closet outfits, combinations and fixtures are also reported as on the road to improvement with the progress made in building. Quotations are nominally unchanged, and the following prices are quoted for small purchases, with a slight concession given for fair sized orders:

Developments in this market are attracting more attention at this season, in view of increased activity in these products now generally anticipated. Primary conditions are described as decidedly improved over last year, and with a freer movement being recorded throughout the trade generally, distributors view future prospects with more optimism.

CLOSET OUTFITS—	
Closet, standard outfit	27 50
Do., with post hinge seat	28 50
Do., white vitro, vitreous china, or enamel enameled iron, with wash-down bowl and oak or mahogany post hinge seat	30 50
Do., reversible trap bowl, less spud	11 50
Do., add for siphon jet bowl	7 00
Do., for ¾ in. valve on supply pipe	1 50
Deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	10 50
Do., reversible trap bowl, less spud	12 75
Do., siphon jet bowl, less spud	19 00
Do., Richelieu bowl	9 00
Do., extra for spud	0 60
Do., oak, or oak-vitro tank, with fittings, less seat	14 25
Do., wood strip seat and cover	3 55
Do., post hinge seat and cover	4 25
Do., add for bar hinge	No extra
Do., white vitro, vitreous china or cled iron tank, with fittings, flush elbow and supplies less seat	18 50

TORONTO MARKETS

TORONTO, April 29.—Current price changes in sanitary and heating materials centre around the revision in discounts on bath compression cocks and brass steam cocks. These products are on easier price levels, and similar lower quotations have been recorded on nickel and nickel specialties, also on both square and hexagon head cap screws and set screws. There is reported marked activity in tin plate circles, with more inquiry now coming to hand for copper and brass products. Soil pipe discounts are recently brought nearer a uniform basis, while the tone of lead on primary centres has been reflected in the improved condition of the finished products with these lines more active. Further strength is added in the sheet markets, and advanced price levels are looked for in the near future in certain quarters. The coal strike is described as affecting primary steel centres to a greater extent than was originally calculated. Current shipments of radiators and boilers are slower than expected, but much potential business is apparent. Keen competition remains the dominant factor in boiler tubes. There has been an improvement in the movement of enameled ware products, with a similar condition applying to closet outfits and fixtures, due to the reflection of seasonal building activity. A quiet tone still prevails in asbestos products, with wrought piping recording a gain in strength.

PRICES SLIGHTLY HIGHER ON CAULKING COTTON

Toronto.

A slight advance in quotations is noted on caulking cotton, this product now being priced at twenty-nine cents per lb.

REVISED DISCOUNTS ON BATH AND STEAM COCKS

Toronto

Some additional revisions in discounts on certain brass compression goods now appear on the local market. These changes particularly affect bath compression cocks, the quotation having been changed from 38 to 41 per cent. off, while a similar reduction is noted on the standard brass steam cocks, discount now being 50 per cent., compared with the former figure of 43.

Current trade in these products is described as fair, and improvement in this direction is generally hoped for, due to the reflection of activity in building circles. Following are prevailing quotations on these products:

VALVES—

	Per cent.
Compression work, standard	45
Fuller work, standard	30
Bath cocks, compression	41
Do., Fuller	25
Flatway stop and wastecocks, stand'd..	54
Roundway stop and waste cocks, std...	46
Brass steam cocks, standard	50
Globe, angle and check valves, std.	25
Mueller globe, angle and check	25
Mueller composition disc steam valves..	33
J. M. T. valves, screwed	20|10
J. M. T. gate valves, screwed	25|10
J. M. T. gate valves, screwed	25|10
Jenkins gate or straightway, screwed	25|10
Jenkins globe, screwed	19|10
Renfrew valves, standard	58
Do., removable disc	58
Emco J. D. rad valves, screwed	33
Emco swing check, ⅜" and ½"	40
Do., Do., other sizes	33
Webber gate valves, screwed	33
Emco gate valves, std.	25
Emco globe valves, J.D., screwed	33

Basin cocks—

No. 0 and 1 Fuller pattern	30
Quick opening No. 3622	50
No. 3622, plain or index handle	34

REVISED DISCOUNTS ON SET AND CAP SCREWS

Toronto.

Revised lower price levels are now evident on both square and hexagon head cap screws and also set screws, through revised discounts. Set screws are now 60 per cent. off, and cap screws 55 per cent.

MARKED ACTIVITY IN TIN PLATE CIRCLES

Toronto

A remarkable degree of activity is noted in tin plate production circles, recent reports from the southern mills indicating that the tonnage has not been equalled since June, 1920. Demand is also recorded as satisfactory, with the domestic trade registering improvement since the recent reduction in prices. It is stated that Canada has been taking a considerable share of Welsh tin plate. One order included 250 boxes. In connection with the Welsh tin plate industry, it is noted that workers associated with the steel trade in South Wales have lately agreed to a marked decline in wages. Following are local tin plate quotations:

	Per box
PLATES, CANADA—	
Dull, 60 sheets	5 30
Ordinary, 52 sheets	5 25
PLATES, COKE TIN—	
IC, 20 x 28, 112 sheets	12 50
IX, 20 x 28, 112 sheets	16 00
IX, 20 x 28, 56 sheets	8 50
PLATES, CHARCOAL TIN—	
IX, 20 x 28, 112 sheets	10 00
IXX%, 20 x 28, 56 sheets	12 00
PLATES, TERNE—	
10 x 14 x 20, 112 sheets	11 50

MORE INQUIRY FOR BRASS AND COPPER PRODUCTS

Toronto.

While no further change has been reported in copper and brass products, such as sheets, rods and tubing, yet the easier tone in primary metal markets, has recently been reflected by reductions in these markets. If quotations on ingot copper had continued to sag, some additional changes were looked for in prices on the semi-finished products. It is noticed, however, that these are now substantially lower, and with the copper market again steadier, the duration of future movements is difficult to determine. Manufacturers and distributors recently report a larger volume of inquiry, indicating potential business in the future. Following are therefore the unchanged average local quotations:

BRASS—	
Sheets base, per lb.	0 21
Rods, base, per lb.	0 19
Tubing, base, per lb.	0 23
COPPER —	
Rods, base, per lb.	0 27
Soft sheets, plain, 1 oz. and heavier, lb.	0 28
Do., plain tinned, 16 oz. and heavier, per lb.	0 35
Do., polished and tinned, 16 oz. and heavier, lb.	0 40
Tubing	0 27

PIPE FITTINGS TRADE ON GRADUAL INCREASE

Toronto.

Current activity in the pipe fittings trade is generally regarded as on the increase, a gradual improvement in this direction having been recorded. This is chiefly attributed to the seasonal movement looked for at this time of the year, combined with a reflection of the increased call for pipe fittings required in construction work. With brisk activity in the building trade continuing throughout the summer months, a fairly satisfactory season for these products is looked for. Following are unchanged discounts on these lines:

PIPE FITTINGS—	Per cent.
Cast iron fittings	30
Plugs, cast iron	30
Oo., solid	30
Do., countersink	30
Bushings, malle.	32
Do., cast	32
Unions, ¼ in. to 2 in.	47
Do., ⅛ in., 2¼ to 4 in.	47
Flanged unions, std.	50
Flanged fittings	30
Dart unions, blk., ¼ to 2 in.	33½
Do., ⅛ in., 2¼ to 4 in.	23
Do., galvd., add to black	30
Nipples, blk., and galvd. ⅛ to 4 in. close and short	60
Do., 4½ in. and larger	50
Do., long, ⅛ in. to 4 in.	65
Do., 4½ in. and larger	55
Do., running thread	40
Couplings, 4 in. and under	30
Do., 4½ in. and larger	10

MALLEABLE FITTINGS—		
Class A	0 54	0 67
Class B	0 20	0 28
Class C	0 13	0 20

BRISK SEASONAL TRADE IN PORTLAND CEMENT

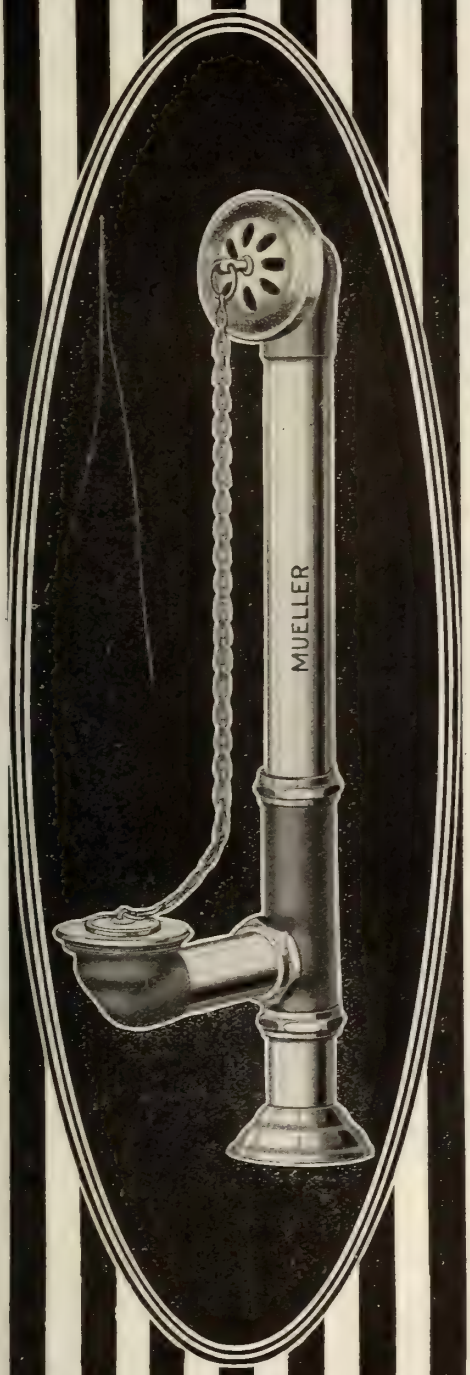
Toronto.

With the increased activity noted in construction circles, the current demand for cement has registered a corresponding improvement. Production of Portland cement is also described as on a larger ratio, with this season of the year recording brisk trade in all phases of the industry. Prices are reported steady, with the following levels still in effect:

CEMENT —	Toronto.
Car load lots.	
Per barrel, delivered	3 70
Less car lots .	
Per barrel, f.o.b. yard	4 30
Per barrel, delivered	4 50

Single bags, $1.15 each; 4 bags to barrel.
Extre charge of $1.50 per load on less than 24 bag lots.
Rebate of 20 cents for empty sacks.

(Contnued on page 30)



MUELLER

1½ inch Waste and Overflow A-2435

This MUELLER connection, because of several late improvements in construction, can be installed much quicker than any other make. The waste elbow and overflow are cast brass, overflow strainer is cast and the waste strainer is of heavy wrought brass.

Toronto By-law Requires 1½ inch Waterway

Toronto City By-law demands that 1½ in. waste and overflow be used, as being perfect in construction, capable of the best service and entirely satisfactory in every way.

Correct designs, the right raw materials and a fine precision in workmanship, make MUELLER Brass Goods stand every test and give dependable and enduring service.

Write for catalogue and prices. Mail orders given immediate attention.

H. MUELLER MFG. CO., LTD.
SARNIA, ONT.
Water, Plumbing and Gas
Brass Goods and Tools

American Factory at Decatur, Ill., U. S. A.
Branches, New York and San Francisco

Mueller Metals Co., Port Huron, Mich., Makers of "Red Tip" Brass Rod: Brass and Copper Tubing; Forgings and Castings in Brass, Bronze and Aluminum; Die Castings in White Metal and Aluminum; also Screw Machined Products.

TORONTO MARKETS

(Continued from page 28)

SOIL PIPE DISCOUNTS NEAR UNIFORM BASIS

Toronto.

Discounts on soil pipe and fittings between eastern and local distributing centres are now on a more uniform basis through the recent announcement from Montreal that a revision has been made on quotations covering 2, 3, 5, and 6-inch sizes. Little variation has been recorded locally, the movement of these products registering a satisfactory volume for this season of the year, with manufacturers and distributors keenly alive to the increased opportunities provided by the current building activity. Following are prevailing discounts:

SOIL PIPE—	
2 inch	40 per cent.
3 inch	40 per cent.
4 inch	40-5 per cent.
5 and 6 inch	40 per cent.
8 inch	net
FITTINGS—	
2 to 6 inch	50-5 per cent.
8 inch	net

FURTHER STRENGTH ADDED IN SHEET MARKETS

Toronto

The sheet market not only continues to reflect the firmer tone recorded during the recent weeks but distributors of these products now state that higher levels are practically looked for within the near future. Warehouses and consumers have had to book ahead due to the fact that the mill delivery changed with the advent of greater demand, and prompt shipments cannot be depended upon to supply immediate needs, as heretofore. While recent base quotations remain nominally unchanged, some higher price levels than $5.35 for galvanized, have already made their appearance locally. It is stated that sheet mills are particularly favored regarding stocks of coal, but heavier operation and the uncertainty as to the duration of the strike adds further strength to the sheet markets generally. Following are prevailing average local price levels.

BLUE ANNEALED—		
10 gauge, base	3 50	4 25
12 gauge	3 55	4 30
14 gauge	3 60	4 35
16 gauge	3 65	4 40
BLACK—		
18-20 gauge	4 05	4 80
22-24 gauge	4 10	4 85
26 gauge	4 15	4 90
28 gauge	4 25	5 00

Charge of 25c. per 100 lbs., is made for less than case lots. An extra 10c per 100 lbs. is also charged on sheets 26 in. wide.

GALVANIZED—	Queen's Head.	Fleur-de-lis.
28 gauge	7 50	7 00
26 gauge	7 25	6 75
24 gauge	6 85	6 35
22 gauge	6 40	5 90
18 and 20 gauge	6 25.	5 75
Premier and Apollo—		
10¾ oz.	5 75	6 50
U. S. 28, base	5 35	6 10
U. S. 26	5 05	5 80
	4 90	5 65
22 and 24	4 75	5 50
18 and 20	4 60	5 35
16	4 45	5 20
12 and 14		

An extra is now charged on galvanized sheets, 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20 cents per 100 pounds. Other gauges show no change for different widths.

An extra 40 cents per 100 lbs., is charged for Keystone and Premier brands copper-bearing

COAL STRIKE AFFECTING PRIMARY STEEL CENTRES

Toronto.

The local bar iron and steel market continues very firm, with prices generally unchanged, although the elimination of shading at southern mill centres has practically introduced higher price levels through the adherence to nominal quotations. Whether this move will be accentuated in the near future owing to recent coal strike developments and the manner in which these events affect the steel industry, is a problem receiving close attention. The general opinion is that coke, rather than coal, is the issue at the moment. The coal strike at the union mines is of comparatively small importance as consumers laid in stocks. Other large consumers, however, dependent upon coal and coke from the non-union mine districts, failed to stock to the same extent, as little labor trouble was looked for. As the non-union strkes proved greater than was anticipated, some blast furnaces have had to restrict operations. This affects the supply of crude steel and it is stated that the continuance of these strikes would introduce the possibility of interruptions in mill operations. The activity among steel centres, remains practically the same as the earlier portion of the month, while prices continue to stiffen. Locally prices are considered as considerably firmer, with $2.75 being more than a nominal base price.

IRON AND STEEL	
Mild steel bars, base	2 75
Mild steel bands, 3 16 in. base	3 25
Bar iron, base	2 75
Angle iron, base	2 85
Horseshoe iron	3 60
Tire steel	3 00
Spring steel	6 00
Crucible cast sheet steel	30 00
Toe caulk iron	4 00
Hoop steel	3 75
Norway iron	12 50

LOWER PRICES ON NICKEL AND NICKEL SPECIALTIES

Toronto.

The International Nickel Co. has announced a new price list on nickel, monel metal and nickel specialties, showing a marked reduction from previous quotations. Nickel shot, ingots and electrolytic are reduced five cents per pound and hot rolled rods ten cents per pound. Cold drawn rods are twelve cents per pound lower.

POTENTIAL BUSINESS IN RADIATOR AND BOILERS

Toronto.

Manufacturers and distributors of radiators and boilers describe the current market as a little quieter than expected insofar as the actual movement of these products is concerned, although the large proportion of inquiries indicates potential business in the offing. This is expected to materialize during the ensuing months, and reach a satisfactory volume of activity during the present season. Quotations are unchanged locally, the undertone being steady in view of recent stiffening throughout the steel industry in general now being more or less reflected in the trend on finished steel products. Following are prevailing list and discounts:

RADIATORS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60.

Discount on 2, 3, 4 and 5-column standard sizes, 59 per cent. for water and 60 per cent. for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 51 per cent. for water and 52 per cent. for steam.

Discounts on 1-column hospital size, water 33 per cent.; steam 34 per cent.

Wall radiators—5 ft. $1.15; 6 ft. $1.10; 7 ft. $1.05; 9 ft., $1.05; 12 ft., $1.05. Discount 56 per cent.

BOILERS—

Water:

Round 64 per cent. off list. Square 15 per cent. off list.

Steam:

Round, 28 per cent. off list; square, 15 per cent. off list.

KEEN COMPETITION IN TUBE BUSINESS

Toronto.

The evidence of keen competition between the various distributors of boiler tubes still remains on the local market. In certain quarters, the current volume of business is described as satisfactory compared with last year, while the outlook has been slightly firmer, especially since the stronger tendency in steel lines generally. Smaller sizes of boiler tubes are reported in better demand for repair work, but the liquidation of stocks in general is dependent upon improved all-round activity. Following are average nominal price levels recorded locally:

BOILER TUBES—	Seamless	Lapweld
1 inch	21 00	.....
1-¼ inch	21 50	.....
1-½ inch	22 00	.....
1-¾ inch	23 00	.....
2 inch	22 00	17 00
2-¼ inch	26 00	18 00
2-½ inch	30 00	20 00
3 inch	34 00	25 00
3-¼ inch	43 00	27 00
3-½ inch	47 00	28 00
4 inch	58 00	35 50

SEASONAL ACTIVITY IN CORRUGATED SHEETS

Toronto

The corrugated sheet market is described as much firmer, in keeping with the improvement in the flat sheet markets. Some increase in activity has also been recorded, the movement of these products usually becoming brisker at this season of the year. The improvement in recent weather conditions has contributed to this result, coupled with the demand from building circles and the lighter gauges are described as registering a fair volume of activity. Following is the unchanged nominal list and discount:

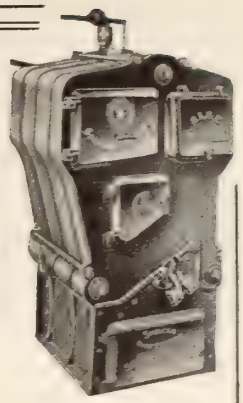
CORRUGATED SHEETS—	Per 100 Sq. Ft.
No. 28 gauge	$6 50
No. 26 gauge	7 00
No. 26, U. S. gauge	8 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50

Less 10 per cent.

Lighter than 24 gauge and wider than 27 inches, 75c. per square extra.

(Continued on page 32)

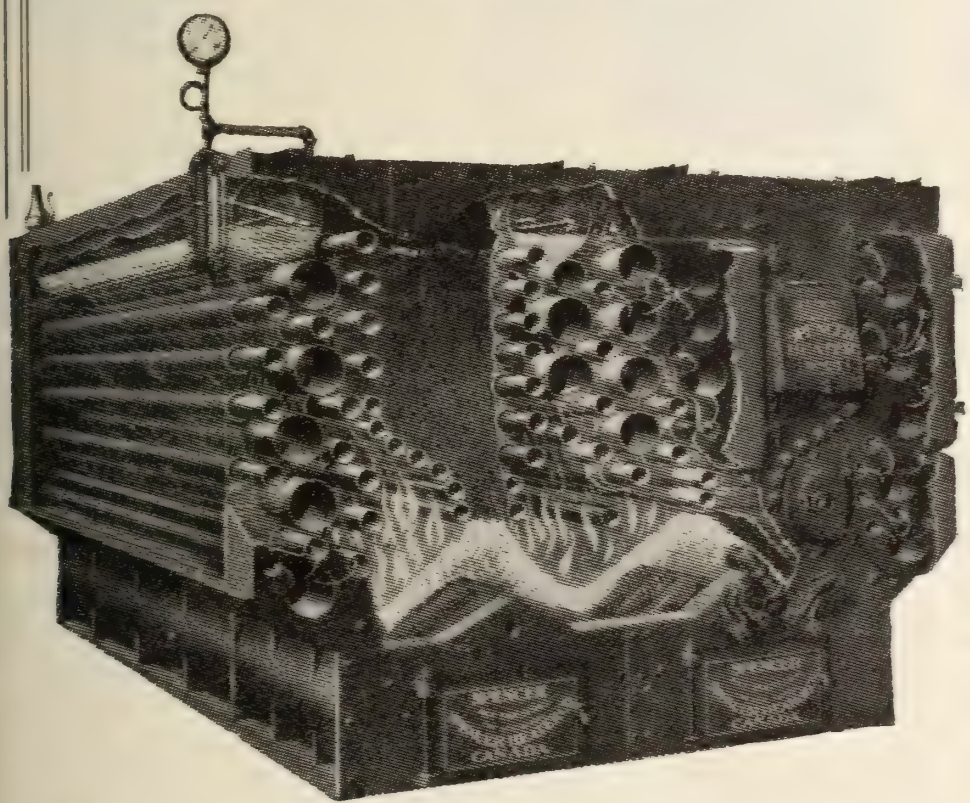
Install the "Spencer" Self Feeding Boiler and Make Sure of Constant Service



Hot Water—10 sizes, 600 to 3,600 sq. ft.

In the number of buildings you will be asked to install heaters, each one will likely be of different styles and sizes and require a certain type of heater.

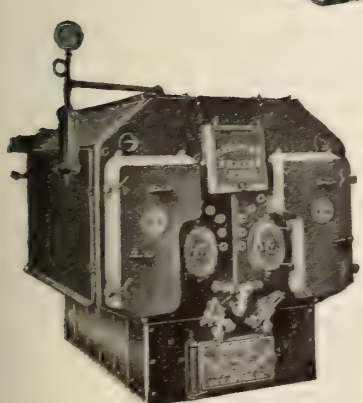
You need not worry about filling such demands as any one of our Spencer heaters will satisfy the particular desire.



Feeds uniformly only as fast as coal is consumed giving exact control. In the coldest weather the Spencer heaters maintain temperatures 48 hours without attention.

The magazine holds a 24-hour supply. Any kind of coal may be used (hard or soft), coke, fuel oil or gas.

By its ability to burn buckwheat coal and hard coal screenings, the Spencer costs less to operate than any other heater on the market.



Steam—27 sizes, 375 to 10,000 sq. ft.

Further particulars furnished on request

Spencer Heater Co. of Canada

LIMITED

68 Adelaide Street East, TORONTO

WINNIPEG, MAN.
185 Portage Ave. East

MONTREAL, QUE.
71 St. James St.

PLANT: PENETANG, Ont.

Continued from page 30

IMPROVED MOVEMENT OF ENAMELED PRODUCTS

Toronto

Enameled ware products are reported to be registering an improved movement, this being attributed to the seasonal demand for buildings of a smaller nature now under construction. There has been some rumors on the local market that manufacturers of these goods were contemplating the introduction of slightly higher prices, but in view of pending betterment in general trade conditions, the report has not been generally credited. Little fundamental change has been recorded in the primary markets and following are the prevailing list prices:

TORONTO MARKETS

ENAMELLED WARE—

Enamelled Iron Baths, 3" roll rim, 4 ft.,			
4 ft. 6 in., 5 ft.			51 40
Do., 5½ ft.			57 10
Lavatories—			
17x10" Apron F139 or P4045			15 30
18x24" Apron F164 or P3845 or P3847			23 60
18x21" Apron F169 or P4205			17 60
18 x 21" Roll Rim, F197, F199 or P4655-6			15 40
17 x 19" Roll Rim, F241 or P4345			12 60
Sinks, Roll Rim, 16x24 in.			18 10
Do., 18 x 30 in.			23 00
Do., 20 x 30 in.			24 70
Sinks, Flat Rim—	3 only	2 only	1 only
16 x 24	$7 60	$7 70	$7 80
18 x 30	8 50	8 60	8 70
20 x 30	9 70	9 80	9 90

Above prices list, less 33 1-3 per cent.

All steel enamel baths, 4 and 4½ ft.	$14 00
Do., 5 ft.	15 00
Do., 5½ ft.	16 75

These quotations are net.

NOTE BETTER DEMAND FOR CLOSET OUTFITS

Toronto.

Like other enameled products, closet outfits and fixtures have recently recorded a better demand. This is also attributed to seasonal activity in building, many homes and smaller erections having reached the stage where the installation of sanitary fixtures, creates some improvement in the current situation. Distributors look for a continuation in this direction during the ensuing months. Little change as regards prices is noted, the nominal list on the standard outfits, being subject to keen competition. Following are current quotations:

CLOSET COMBINATIONS, low down	each
Closet, standard outfit, oak	27 75
Do., with post hinge seat	28 40
Do., mahogany Vitro or Pussyfoot, with mahogany post hinge seat and cover	30 25
Do., vitreous china, with oak post hinge seat and cover	30 75
Do., vitreous china, with mahogany post hinge seat and cover	31 00
Do., white Vitro or Pussyfoot, with maoak post hinge seat and cover	30 75
Do., white Vitro or Pussyfot, with mahogany post hinge, seat and cover	31 00
Do., enamelled iron tank with oak post hinge seat and cover	30 75
Do., enamelled iron tank with mahogany post hinge seat and cover	31 00
Additions or reductions to above	
Add for reverse trap bowl	1 25
Add for syphon jet bowl	7 00
For ⅜ in. valve on supply pipe	1 50
Deduct for supply pipe	0 70
Deduct for floor flange and bolts	0 80
CLOSET BOWLS—	
Washdown bowl, less spud	10 00
Reversible trap bowl, less spud	11 25
Syphon jet bowl, less spud	17 00
"Buckeye" bowl	10 50
CLOSET TANKS, low down	
Oak, Vitro or Pussyfoot tank with fittings, less seat	13 10
White Vitro or Pussyfoot tank with fittings, flush elbow and supply	15 25
Vitreous china tank with fittings, flush elbow and supply	18 00
Enamelled iron tank with fittings, flush elbow and supply	18 00
CLOSET SEATS—	
Oak post hinge seat and cover	4 00
Oak wood strip seat and cover	3 25
Mahogany finish post hinge seat and cover	4 25

RANGE BOILERS ONLY IN MODERATE ACTIVITY

Toronto

Range boilers continue to show a moderate movement, with little change having been recorded in this market. The list prices and discounts are being generally adopted, although in some cases, it is reported that adherence to net quotations has been the rule. The final price, however, is comparatively the same, and the uniform introduction of the recent list is generally looked for. Strenuous competition prevails, and buying is described as still according to current requirements. Following are list prices and discounts:

RANGE BOILERS—

Size.	List Price.
5-gallon	$13 50
12 to 15 gallon	14 00
18-gallon	15 00
25-gallon	16 50
30-gallon	17 50
35-gallon	20 50
40-gallon	22 75
52-gallon	38 00
66-gallon	60 75
82-gallon	74 00
100-gallon	103 00
120-gallon	117 00
144-gallon	164 00
168-gallon	187 00
192-gallon	210 00

Discounts, Standard weight, 50 per cent.
Extra heavy, 40 per cent.

BRISKER TRADE IN TROUGH AND PIPE

Toronto.

The season for eavestrough and conductor pipe is now on hand, and these products have already registered an improved movement, due to early construction activities. Prices have remained fairly steady, with brisk seasonal trade being generally looked for with the arrival of warmer weather. Current prices follow:

TROUGH EAVE—

O. G. Square Bead and half round. Size in girth:	Per 100 ft.
8 in.	15 90
10 in.	17 70
12 in.	21 20
15 in.	28 80
18 in.	36 50

Less 70 and 10 per cent.

PIPE (CONDUCTOR)—

Plain, round or corrugated.	Per 100 ft. in 10 ft. lengths.
2 in., in 10 ft. lengths, list	18 40
3 in., in 10 ft. lengths, list	22 30
4 in., in 10 ft. lengths, list	29 60
5 in., in 10 ft. lengths, list	40 00
6 in., in 10 ft. lengths	49 00

Less 70-10 per cent.

ELBOWS (CONDUCTOR)—

2 inch, list	5 25
3 inch, list	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00

Less 60 per cent.

QUIET TONE PREVAILS IN ASBESTOS MARKET

Toronto

The asbestos market is still described as quiet, with current trade in moderate proportions. Lack of commercial construction on an extensive scale is reported as having a retarding effect on the movement of these products. While brisk activity is generally noted in house building, the smaller erections do not provide an extensive field for the introduction of asbestos. However, a slight improvement is looked for as the season advances. Following are unchanged discounts:

ASBESTOS PRODUCTS—

Pipe Covering—

Air cell, 4 ply	55 per cent. off list.
Air cell, 3 ply	60 per cent. off list.
Air cell, 2 ply	65 per cent. off standard list.
Boiler Covering	$1.90 per bag.
Asbestos Sheathing	$8.00 per 100 lbs.

STEADY MARKET NOTED IN COTTON WASTES

Toronto

Little variation is recorded in the market on cotton wastes, the current tone generally being described as quiet, but steady. Quotations remain unchanged, with the raw cotton centres fluctuating more or less. On the whole, the situation is stated to be fairly satisfactory as compared with last season. Following are unchanged prices:

COTTON WASTES—

Cream, polishing	0 18
White, XXX	0 18
XX	0 16
X	0 15
XC	0 14
XXX, extra	0 16
XX, grand	0 15
XLCR	0 14
X, Empire	0 13
X press	0 11½
Colored, No. 1	0 13
No. 17	0 12
No. 1A	0 11
No. 1B	0 10
Fancy	0 13½
Lion	0 12
Standard	0 10½
Popular	0 09
Keen	0 07½

Above lines subject to trade discount for quantity.

LEAD FIRMER WITH PRODUCTS MORE ACTIVE

Toronto.

Lead and zinc products are remaining at the recently revised price levels, with seasonal activity noted as regards the current movement of these lines. It is also noticeable that lead on the primary metal markets is the strongest group at present, some improvement in demand and increased consumer interest having added considerable strength to the undertone. Solder quotations are unchanged, with copper having been slightly steadier during recent weeks. Following are prevailing price levels on the local market:

LEAD AND ZINC GOODS—

Lead pipe, list, per lb.		0 12
Lead, waste pipe, list, per lb.		0 13
Do., over 8 in., list, per lb.		0 14
Lead pipe is subject to a discount of 10 per cent.		
Lead traps and bends		17½ per cent.
Lead sheets, 4 to 6lbs., sq. ft. in rolls, lb.		0.09
Cut sheets, ½c to ¾c lb. extra and cut sheets to size, 1c lb. extra.		
Solder wire, per lb.		0 30
Do., commercial, lb.		0 22½
Do., strictly, lb.		0 21
Do., guaranteed, lb.		0 24
Do., wiping, lb.		0 21
Zinc sheets, per lb.	0 09	0 10

Continued on page 34

As a Fitting Climax to your Installation Work be sure you use

"IMICO"

Pipe Fittings

Our malleable pipe fittings are made of Air Furnace Refined, Iron Reamed, and Tapped to gauge with perfect threads.

We have malleable and grey iron castings for agricultural implements, automobiles and specialties.

In our assortment are both screwed and flange fittings, either black or galvanized.

For any class of installation work they will give the right quality of service.

INTERNATIONAL MALLEABLE IRON COMPANY, LIMITED

GUELPH, ONTARIO

Representatives:

VANCOUVER, B.C.—Messrs. Ames Bros., 325 Howe St.

WINNIPEG, MAN.—Messrs. Harry F. Moulden & Son, Confederation Life Bldg.

Representatives:

ST. JOHN, N.B.—Messrs. H. G. Rogers, Limited, 147 Prince William St.

HALIFAX, N.S.—Mr. Geo. D. Hatfield, Bedford Chambers.

TORONTO MARKETS

(Continued from page 32)

SCRAP MATERIALS ARE STILL REPORTED QUIET

Toronto.

The demand for scrap materials is still described as poor, with cast iron grades being purchased in minor amounts. The scrap rubber business is extremely quiet, and prices have sagged still lower. It is noticed however, that foundries are now more active, and with the expectations that steel mills will shortly increase operations improvement in the near future is looked for. In respect to red and yellow metals, the declines recently apparent in virgin copper have affected the purchasing in this division of the market. While dealers are reported to be carrying fairly heavy stocks, quotations remain unchanged. Following are the usual averages of dealers' buying prices, large quantities.

SCRAP MATERIALS—

Scrap Iron		
Gross Tons —		
Heavy melting steel (Hamilton)	11 50	$12 00
Borings and turnings	2 00	3 00
Rerolling rails	10 50	11 50
Scrap pipe	6 00	7 00
No. 1 railroad wrought	10 25	11 25
Steel turnings (Hamilton)	6 50	7 50
Agricultural malleable	10 00	11 00
Railroad malleable	11 00	12 00
Net tons —		
No. 1 cast	15 75	16 75
Stove plate	11 50	12 00
Grate bars	10 50	11 00
Standard car wheels	14 50	15 00
Scrap Metals.		
Heavy copper and wire	10 50	11 00
Light copper	8 00	9 00
No. 1 composition	9 00	10 00
No. 1 comp. turnings	6 00	7 00
Light brass	3 00	3 50
Heavy yellow brass	5 50	6 00
Heavy lead	4 50	4 75
Tea lead	2 00	2 50
Scrap zinc	4 00	4 50
Scrap Rubber.		
Boots and shoes	2 25	2 50
Lumbermen's rubber boots	1 50	1 75
Auto tires	0 50	0 60
Solid tires	0 75	1 25

LEAD REMAINS FIRMEST METAL IN GROUP

Toronto

Lead, antimony, and aluminum, in the order named, provide the features of an otherwise quiet ingot metal market. Lead as previously noted, remains the firmest of the group, with increased activity recorded. More interest has been noted in antimony, and while current trading is a little quieter than last week, prices have continued steady. Some increased business in aluminum has been responsible for new life being displayed in this metal, but few marked developments have been recorded. Copper conditions, the tin markets, are also described as moderate.

COPPER.—Current business in copper on the domestic markets continues of rather narrow proportions, while reports from primary sources indicate that export trade is also more or less moderate. Copper consumers are stated to be operating more actively, and the general tone of the metal is fundamentally unchanged. Local prices remain at 16½ cents.

TIN.—This metal has remained quiet on both domestic and primary markets. There has been a little more activity in London, with some increase in prices, but these changes have not affected the general situation. The quotation of 34 cents covers the average local trading.

LEAD.—As recently noted, lead is the firmest metal of this group, and prices on southern centres have been described as on the increase. Business in lead has also improved, and the undertone of the market is firm. Domestic quotations are much steadier at $6.50.

SPELTER.—Prices on spelter tended to ease a little on primary markets at the commencement of the week, to be followed later by a slight increase in activity which served to steady the general tone. More inquiries are reported for this metal. Domestic quotations remain unchanged at $6.75.

ANTIMONY.—The firmer tendency recently noted in antimony is being generally maintained, although recent trading has been quiet, the market remains steady. A continuance of the gain in strength would tend toward slightly higher levels. Meanwhile, the local prices continue around 6 and 7 cents.

ALUMINUM.—Increased business in aluminum is reported from southern centres, with prices exhibiting a firmer trend. Locally, the general situation in this metal is practically unchanged, with quotations hovering between 26½ and 27 cents.

WINNIPEG MARKETS

WINNIPEG, April 29.—Several important price developments feature the current plumbing and steam-fitting supply markets, easier quotations having been announced on such products as soil pipe and fittings, galvanized range boilers, and lead pipe, lead waste and bends. A firmer tendency is noted in wrought piping, this being a reflection of the general stiffening in the steel industry recently evident. The sheet market is described as unquestionably firm, although no price changes have been recorded. The advent of seasonal weather conditions, coupled with ambitious building programs, has developed a more optimistic viewpoint throughout the trade, and brisker activity is generally looked for during ensuing months. Enameled products, pipe fittings and brass compression goods, show recent improvement in this direction.

NEW DISCOUNTS ON SOIL PIPE AND FITTINGS

Winnipeg.

Through a revision in discounts soil pipe and fittings are now quoted lower.

Sales of these products are dependent for the greater part on building construction and although business has been seasonably light during the early months of the year, it is expected that increased activity will soon develop, as a fairly extensive building program is anticipated as soon as the weather records seasonal improvement. Following are the revised discounts:

SOIL PIPE—	
2 and 3 in.	27½% off
4 in.	37½% off.
5 and 6 in.	32½% off
8 inch	10% adv.
SOIL PIPE FITTINGS—	
2 and 3 inch.	47½% off
4, 5 and 6 inch	50% off
8 inch	10% adv.

REVISED QUOTATIONS ON LEAD PIPE AND WASTE

Winnipeg.

A decline has been announced in quotations on lead pipe and lead waste and bends. These changes place lead products on a lower basis in anticipation for an improved demand during the summer months. Following are the revised quotations:

Lead pipe	$11.61 per 100 lbs.
Lead waste	12.51 per 100 lbs.
Lead bends	12½% off list.

LOWER PRICES APPEAR ON RANGE BOILERS

Winnipeg.

Quotations on galvanized range boilers have now been reduced. This change places these products on an easier basis, with the approach of the active building season when a better demand is naturally looked for. Present stocks are said to be in fair shape. Following are the revised prices:

RANGE BOILERS—	
30 gal., each	9 60
35 gal., each	12 50
40 gal., each	13 75
52 gal., each	22 60
66 gal., each	35 00
82 gal., each	42 50
100 gal., each	60 00
120 gal., each	65 00

FIRM TENDENCY IN GALVANIZED SHEETS

Winnipeg.

The market continues to reflect a decidedly firm tendency, which has been evident since the stiffening in the steel industry recently recorded. Some higher quotations have been announced in southern production centres, but whether these changes will spread to domestic markets, is stated as depending upon the general adoption of the new levels, together with the current demand for sheets and plates experienced during the ensuing weeks.

Following are the unchanged prevailing prices:

	Per 100 lbs.
BLACK SHEETS—	
10 ga.	$5 35
12 ga.	5 40
14 ga.	5 45
16 ga.	5 50
18 and 20 ga.	5 90
22 and 24 ga.	6 00
28 ga.	6 40
GALVANIZED SHEETS—	
16 ga.	$ 6 45
18 ga.	6 50
20 ga.	6 60
22 and 24 ga.	6 75
26 ga.	6 90
28 ga.	7 50
10¾ oz.	7 90

Time—

There was a time when some bosses would argue that their men were against using labor-saving tools and certain specialties because they cut down their time, but that argument is seldom met with to-day. The present day sanitary engineer and present day mechanic realize that efficiency counts and that "time saved is money earned."

"C. & H." time and money-saving specialties are fast becoming known to the Canadian trade. If you have not yet become acquainted with our line—it's time you did.

Take "C. & H." flat wire bending springs for instance. These wonderful springs make lead work a real pleasure. We've yet to find the man who would part with a C. & H. spring after having once used it. They will last a lifetime.

Other C. & H. specialties that are fast winning favor with the trade are:

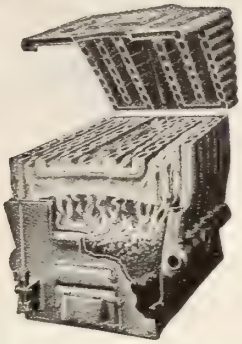
C. & H. Flexible Hack Saw Blades.
C. & H. Combination Shell Drills.
C. & H. Boiler Repair (Tap) Plugs.
C. & H. Knife Blade Cutter Wheels.
C. & H. Pipe Joint Cement.
C. & H. Cone Top Tank Bulbs.
C. & H. Pipe Reamers (Spiral).

We are Canadian distributors and carry complete stocks of:

"Ubel" Semi-Rotary Pumps.
"Hotstream" Gas and Kerosene Water Heaters.
"Hercules" Drain Pipe Solvent.
"Sanilav" Closet Cleaner.
"Porcela" Enamel Cleaner.
"Lion" Quick Action Tank Couplings.
"B. & C." Floor and Ceiling Plates and Air Valves.

"C.&H." Specialties are guaranteed to give satisfaction. Write to-day for Stock List.

W. H. Cunningham & Hill Ltd.
269 West Richmond St., Toronto



Long Fire Travel and Short Coal Bills

The less up chimney heat there is, the more boiler heat there is going to be.

"Up chimney" heat means coal waste.

In the illustration you will see that the Burnham Boiler fire travel is 3 times back and forth on **both sides** of the boiler.

This means that the bulk of the heat is out of the gases before they enter the flue.

Lord & Burnham Co. Limited of Canada

(Boiler Department)

ROYAL BANK BLDG. Toronto

Burnham Cosy Comfort Heat 8B

FACTORY: St. Catharines, Ontario

The Everlasting Veneer Toilet Seat

Strong, Clean Hygienic

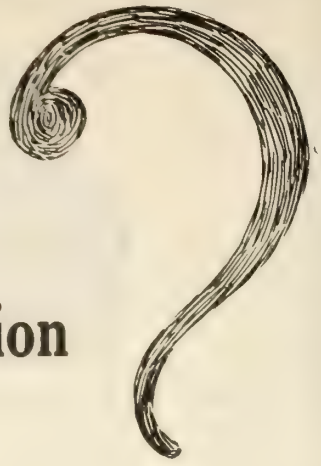
This reliable, dependable toilet seat is made of 7- and 9-ply, air-seasoned wood veneer, held together by our special wood cement. This cement is proof against heat, cold or dampness. The veneering is distributed according to the strain and wear required of the different parts. The Everlasting Seat will never crack, warp or split.

It is a splendid seat for use in cold, damp basements where closets must be installed. The Everlasting Toilet Seat will meet, and successfully resist these severe conditions of moisture, changing temperature, etc.

Canadian Veneering Company, Incorporated

Acton Vale Quebec

Handling Steam Condensation



When you find a gravity return heating system—with one section sluggish in action and no circulation, what do you do to correct it?

How do you balance up unequal return pressures?

If you have to drain a heating section which is below the boiler, how do you do it?

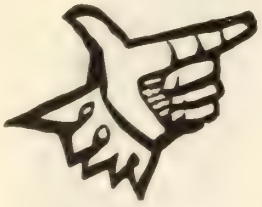
If your lines are "air-bound" how do you relieve them?

If you find the heating returns running to waste—does it pay to catch them and return them to the boiler?

Have you ever removed "dumping" traps because they wouldn't dump?

Have you ever seen a "return trap" which would not return?

Have you ever got into trouble through installing a troublesome return trap?



We have eliminated the "dumping return trap" with its failures and troubles.

We show you how to avoid trouble when you want to put in a direct return system.

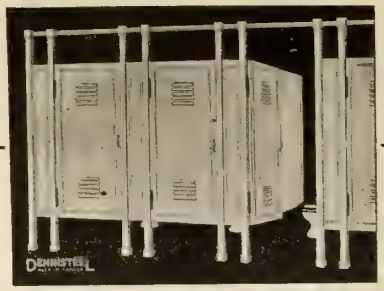
You get all the advantages of a direct return system without a possibility of failure or a chance of trouble when you use our condensation appliances.

Ask us for particulars. Condensation is our strong point.

Canadian Combustion Company
Limited

Engineers and Manufacturers

43 Victoria St. Toronto



DENNISTEEL
Made in Canada

Steel Lavatory Compartments

For Schools, Factories and Public Buildings

"Hygienic, Non-Markable, Fireproof"

These compartments can be finished to harmonize with the most elaborate fixtures and surroundings.

Write for folders

THE DENNIS WIRE AND IRON WORKS CO. LIMITED
LONDON
CANADA

HALIFAX
ST. JOHN, N.B.
MONTREAL
OTTAWA
TORONTO
HAMILTON

WINDSOR
WINNIPEG
CALGARY
EDMONTON
VANCOUVER

THE MARVEL

GAS WATER HEATER

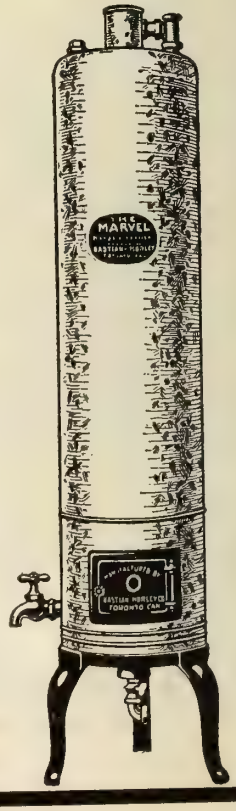
You Can Install It Anywhere

Boiler and Heater are combined into one unit in the MARVEL. It's so compact and simple you can instal it anywhere — with less trouble and in less time than old-style gas water heaters.

And it makes a better job—a job that your customers will tell their friends about.

No coils — lime-proof, free from rust and sediment. Silent and odorless. Saves gas! Can be connected with furnace or range in winter, if desired.

The "Marvel" costs no more than ordinary heaters. You get a good discount—handle the job in less time—give complete satisfaction. Write for full information and descriptive literature.



Bastian-Morley Limited
Makers of the Royal "Automatic" Gas Water Heater.

195 Victoria St., TORONTO

"PUSSYFOOT"

SILENT AS A PUSSY'S FOOT QUICK AS A CAT

SILENT - EFFICIENT - DURABLE
Because of these qualities and the fact that it **costs no more**, the Pussyfoot is easy to sell, and, once sold, is a monument to your discrimination.
If you are not displaying the Pussyfoot you are losing good business.

10,000 in 1921--20,000 in 1922

Think of it! "Pussyfoots" are breaking all sales records and at the present rate 20,000 or more will be sold this year.

But as we have said before—

There's a Reason

By its quiet efficiency and durability under every service and condition the "Pussyfoot" is daily demonstrating that **there is no better tank made.**

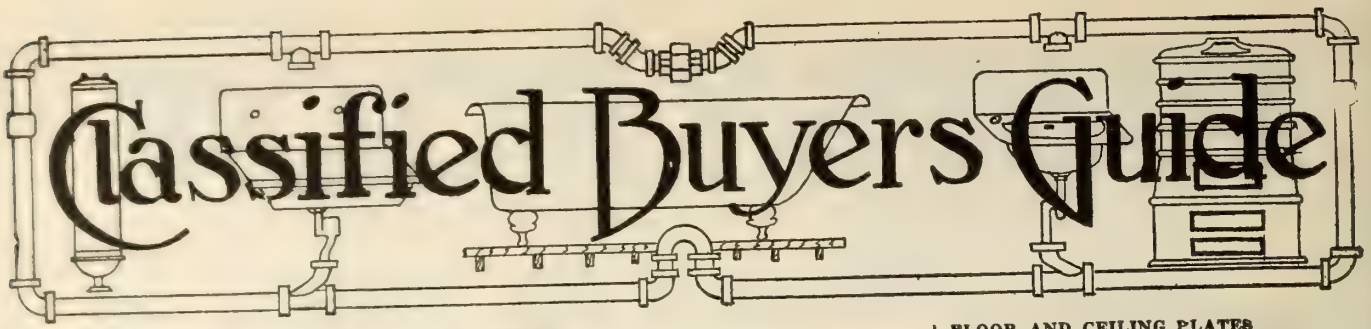
Insist on "Pussyfoot" from your Jobber.

THE CANADA METAL CO., LIMITED
TORONTO
Montreal Hamilton
Winnipeg Vancouver

THE "ARISTOCRAT" IS THE PRINCE OF LAUNDRY TUBS

FITTINGS LIMITED

OSHAWA, CAN.
MANUFACTURERS OF
"DIAMOND" PIPE FITTINGS



AIR LINE SYSTEMS
C. A. Dunham Co., Ltd., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.

ALUMINUM CASTINGS
Fittings Limited, Oshawa.
Canada Metal Co., Ltd., Toronto.

AIR PRESSURE TANKS
The Canadian John Wood Mfg. Co., Toronto.

AIR VALVES
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Beaton & Corbin Mfg. Co., Southington, Conn.
W. H. Cunningham & Hill, Ltd., Toronto.
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Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
J. H. Williams Co., Brooklyn, New York.
Steel & Radiation, Ltd., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.

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Gendron Mfg. Co., Ltd., Toronto.

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Lord & Burnham Co., Ltd., Toronto.
Spencer Heater Co., Ltd., Toronto, Ont.
Steel & Radiation, Ltd., Toronto.
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BOLTS AND NUTS
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Canada Metal Co., Ltd., Toronto.
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Fittings Limited, Oshawa.
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Kerr Engine Co., Ltd., Walkerville.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Trimont Mfg. Co., Roxbury, Mass.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.
W. H. Cunningham & Hill, Ltd., Toronto.

BRASS PIPE AND TUBE
Canada Metal Co., Ltd., Toronto.
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James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Wolverine Ltd., Toronto, Ont.

CASTINGS
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Fittings Limited, Oshawa.

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Galt Brass Co., Limited, Galt.
Empire Mfg. Co., Ltd., London and Toronto.
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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
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CHAINS
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CLAMPS "C"

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James Morrison Brass Mfg. Co., Toronto.
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Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

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The Westr Pumps Limited, Toronto.

COUNTRY RESIDENCE EQUIPMENTS
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COUPLINGS
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DAMPER REGULATORS
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DISCS
The Commercial India Rubber Manufacturing & Supply Co., Ltd., London, Eng.

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Canada Metal Co., Ltd., Toronto.
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Fittings Limited, Oshawa.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Steel & Radiation, Ltd., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Warden King, Ltd., Montreal.

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W. H. Cunningham & Hill, Ltd., Toronto.

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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
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Galt Brass Co., Limited, Galt.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
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Fittings Limited, Oshawa.
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Steel & Radiation, Ltd., Toronto.
Standard Sanitary Mfg. Co., Ltd., Toronto Hamilton.
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Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Ltd., Galt.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto. Hamilton.
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Wolverine Ltd., Toronto, Ont.
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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
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Steel & Radiation, Ltd., Toronto.
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Spencer Heater Co., Ltd., Toronto.
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The Hotstream Heater Co., Cleveland, Ohio.
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Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal and Toronto.
W. H. Cunningham & Hill, Ltd., Toronto.

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JAPANNING
Fittings Limited, Oshawa.

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Hoyt Metal Co., Toronto.
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Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

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Fittings Limited, Oshawa.

MACHINE BOLTS AND NUTS
Fittings Limited, Oshawa.

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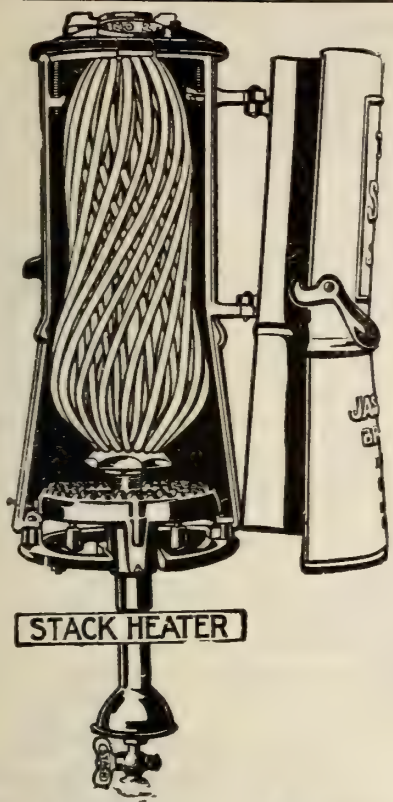
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co. Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Port Hope Sanitary Mfg. Co., Ltd., Port Hope.



STACK FACTS

From Tests Made by Various Gas Light Companies

The STACK will heat 5 gallons of water 3 minutes quicker than the average heater.

The STACK raises the temperature of 5 gallons of water 28 degrees higher in 10 minutes than the average heater.

The STACK will heat 3 gallons more in 10 minutes than the average heater.

The STACK shows 15% greater efficiency than the average heater.

James Morrison Brass Mfg. Co., Limited

93-97 Adelaide Street West, TORONTO

BEAVER BRAND

Porcelain Enamel Ware

—*Your Guarantee of Quality*

Beaver Brand Enamelware, by its ability to meet the highest demands for service under all conditions, has established itself in the confidence of the public to such an extent that each month witnesses an ever-increasing demand for products of Beaver manufacture.

Amherst Foundry Co., Limited

General Offices and Factory: Amherst, N.S.

Agents:

Ontario:
Monarch Brass Mfg. Co.,
71 Brown St., Toronto

Manitoba and Northwest:
E. B. Plewes,
197 Princess St., Winnipeg

PACKING
RADIATOR FOOT RESTS
Empire Mfg. Co., Ltd., London and Toronto.
Wolverine Ltd., Toronto, Ont.
W. H. Cunningham & Hill, Ltd., Toronto.
PACKLESS RADIATOR VALVES
Kerr Engine Co., Walkerville.
C. A. Dunham Co., Ltd., Toronto, Ont.
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Beaton & Cadwell Mfg. Co., New Britain, Conn.
Beaton & Corbin Mfg. Co., Southington, Conn.
W. H. Cunningham & Hill, Ltd., Toronto.
PIPE, BLACK AND GALVANIZED
Canada Metal Co., Ltd., Toronto.
Canadian Tube & Iron Co., Ltd., Montreal.
Empire Mfg. Co., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd. Sarnia, Ont.
Steel & Radiation. Ltd., Toronto.
Standard Sanitary Mfg. Co., Ltd., Toronto Hamilton.
PIPE CLEANSER
Chamberlain Desolvo Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Wolverine Ltd., Toronto, Ont.
W. H. Cunningham & Hill, Ltd., Toronto.
PIPE JOINT COMPOUNDS
Wolverine Ltd., Toronto, Ont.
James Morrison Brass Mfg. Co., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
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PIPE, SOIL, AND FITTINGS
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Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings Limited, Oshawa.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Toronto Hardware Mfg. Co., Toronto.
Warden King, Ltd., Montreal
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Borden Canadian Co., Toronto.
A. B. Jardine & Co., Hespeler.
W. H. Cunningham & Hill, Ltd., Toronto.
PIPE WRENCHES
J. H. Williams Co., Brooklyn, New York.
W. H. Cunningham & Hill, Ltd., Toronto.
PLUMBERS' TOOLS
J. H. Williams & Co., Montreal, Que.
W. H. Cunningham & Hill, Ltd., Toronto.
PNEUMATIC WATER SUPPLY TANKS
Empire Mfg. Co., London and Toronto.
PORCELAIN WARE
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Porcelain Products Ltd., Toronto.
PUMPS
Atlas Engineering Co., Ltd., Toronto.
W. H. Cunningham & Hill, Ltd., Toronto.
R. M. McDougall & Co., Ltd., Galt, Ont.
The Westco Pumps Limited, Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.
PUMPING SYSTEMS, AUTOMATIC
Canada Metal Co., Ltd., Toronto.
R. M. McDougall & Co., Ltd., Galt, Ont.
The Westco Pumps Limited, Toronto.
Beaton & Cadwell Mfg. Co., New Britain, Conn.
RADIATORS
Gurney Foundry Co., Limited, Toronto.
Lord & Burnham Co., Ltd., Toronto.
Steel & Radiation Ltd., Toronto.
Warden King Ltd., Montreal.
RADIATOR HANGERS
Healy Ruff Company.
RADIATOR NIPPLES
Fittings Limited, Oshawa.
RADIATOR TRAPS (STEAM)
C. A. Dunham Co., Ltd., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.
RIVETS
Fittings Limited, Oshawa.
RANGE BOILERS
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
The Canadian John Wood Mfg. Co., Toronto.
Toronto Hardware Mfg. Co., Toronto.
REDUCING PRESSURE VALVES
C. A. Dunham Co., Ltd., Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.
ROOF FLANGES AND FLASHINGS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
The Simplex Mfg. Co., Chicago, Ill.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
SEPTIC TANK VALVES AND SYPHONS
Anthes Foundry Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
SINK BRACKETS
Fittings Limited, Oshawa.
SOCKETS, WIRE ROPE
J. H. Williams & Co., Montreal, Que.
SOLDER
Canada Metal Co., Ltd., Toronto.
Hoyt Metal Co., Toronto.
STEAM SPECIALTIES
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
Kerr Engine Co., Walkerville, Ont.
James Morrison Brass Mfg. Co., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.
STEAM TRAPS
Atlas Engineering Co., Ltd., Toronto.
C. A. Dunham Co., Ltd., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.
STOVES
Gurney Foundry Co., Limited, Toronto.
STOVES, GAS AND COAL
Gurney Foundry Co., Ltd., Toronto.
SMOKE TEST MACHINES
James Morrison Brass Mfg. Co., Toronto.
SWIVELS, HOOK
J. H. Williams & Co., Brooklyn, N.Y.
TANKS, STEEL
Atlas Tank Works, Toronto.
The Canadian John Wood Mfg. Co., Toronto.
TANK BULBS (RUBBER)
Canada Metal Co., Ltd., Toronto.
W. H. Cunningham & Hill, Ltd., Toronto.
TESTING PLUGS
James Morrison Brass Mfg. Co., Toronto.
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TESTED Soil Pipe

IT COSTS NO MORE AND YOU KNOW THE JOB IS RIGHT

Manufactured by

FORWELL FOUNDRY, LTD.

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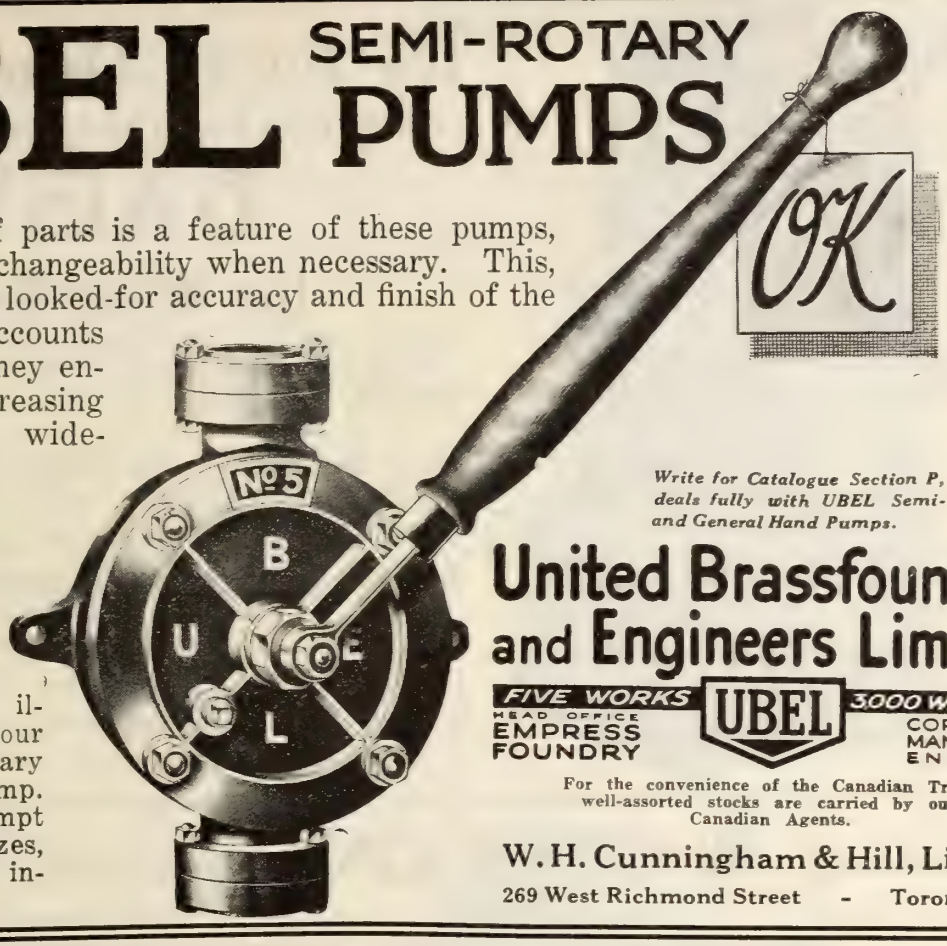
UBEL SEMI-ROTARY PUMPS

Standardization of parts is a feature of these pumps, guaranteeing interchangeability when necessary. This, combined with the looked-for accuracy and finish of the UBEL product, accounts for the fact that they enjoy an ever-increasing popularity and widespread demand.



The accompanying illustration shows our Fig. P 1 Semi-Rotary Double-Acting Pump. We can give prompt shipment of all sizes, from ½ in. to 3 in. inclusive.

Write for Catalogue Section P, which deals fully with UBEL Semi-Rotary and General Hand Pumps.

United Brassfounders and Engineers Limited

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For the convenience of the Canadian Trade well-assorted stocks are carried by our Canadian Agents.

W. H. Cunningham & Hill, Limited
269 West Richmond Street - Toronto, Ont.

AMONG a plumber's best friends are his tools and, among his tools, many a plumber claims Williams' "Vulcan" Chain Pipe Vise as his best friend.

Ask for our "30 vs. 60 lbs." booklet. It will prove the value of "Vulcan" friendship.

J. H. WILLIAMS & CO.

LIMITED

"The Drop-Forging People"

Formerly Canadian Division of THE WHITMAN & BARNES MFG. CO.
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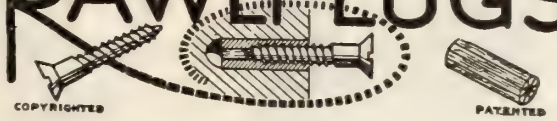

Enable Ordinary Screws to Hold In Any Material

The Rawlplug is a manufactured tube of fibre strands so cemented that when once in position it can never crumble or pulp and is impervious to decay through moisture or otherwise.

The Rawlplug expands as the screw is turned home. This results in a perfect grip by the Rawlplug in any material as its friction extends throughout its entire length and the Rawlplug thus forms an integral part of the surrounding material. The screw cuts a perfect thread inside the plug.

INVENTIONS LIMITED
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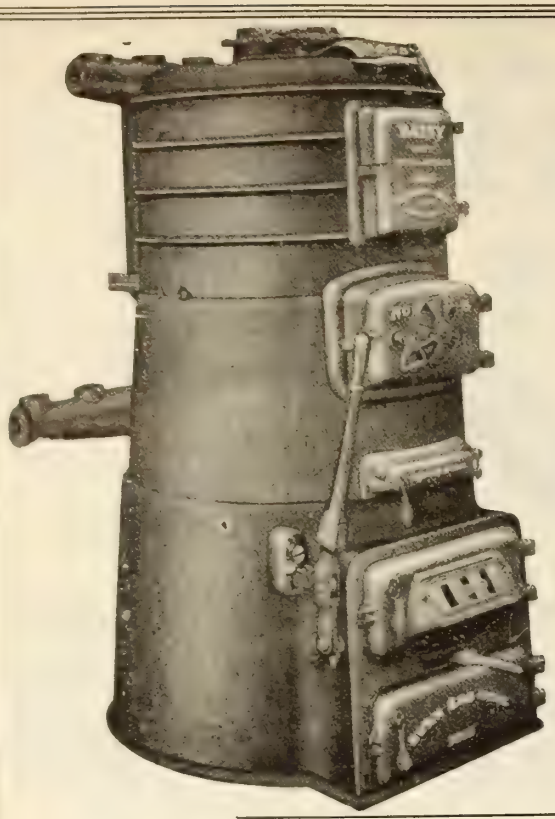


It's Joy to Own a Daisy

That's Why You'll Find Them Easy to Sell

DAISY

Hot Water Boilers

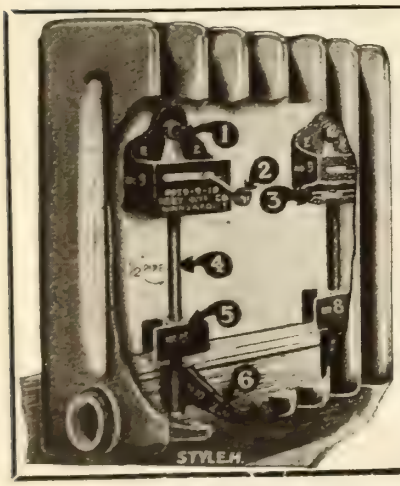
The Daisy is easy to understand, easy to operate, and easy to get good results with.

Daisy Boilers will run with surprisingly little attention. They burn easily and steadily. The water is quickly heated and easily kept hot with a minimum consumption of fuel.

The best help you can have in selling a Daisy Boiler is to send your prospect to interview your last customer—they're always satisfied—delighted—with the Daisy.

WARDEN KING, Limited, Montreal

Branch Office: **136 Simcoe St., Toronto**



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Manufactured in Canada **Reasonable in Price**

(1) One Bolt.
(2) Invisible Washer.
(3) Horizontal Adjustment.
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(5) Baseboard Adjustment.
(6) Made for Wall and Column Radiation.

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Good papers furnish A. B. C. reports to their advertisers.

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THE CLASSIFIED COLUMN

CASH REGISTER WANTED. SINGLE DRAWER, receipt printer. Must be in excellent condition. Box 16, Sanitary Engineer.

ONE J. & J. TAYLOR SAFE, INSIDE DIMENSIONS 15 inches deep, 2 feet 6 inches wide, three feet 11½ inches high and fitted with a built in compartment. Price $250.00.

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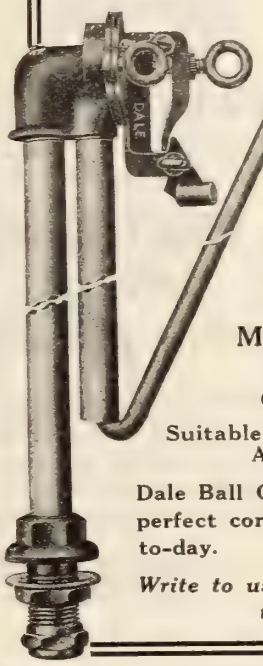


Dale Ball Cocks

—for high or low pressure

Have indestructible Porcelain Seat

Mechanically perfect in every detail

Quick acting and noiseless

Suitable for all localities—Not affected by Acid, Alkali or sandy water

Dale Ball Cocks and Kantleak Floats make a perfect combination - Better order a supply to-day.

Write to us for further particulars regarding these reliable Ball Cocks.

Mr. Sanitary Engineer

Ask your jobber for No.4 Somerville Combination Self Venting Fitting. Canadian rights fully covered.

Somerville Iron Works

Somerville, N. J.

WROUGHT PIPE

Suitable for the approaching period of building activity, road construction, etc. This is a line of great importance in making successful, profitable contracts. Our C. T. Brand of Wrought Pipe has been

THOROUGHLY INSPECTED

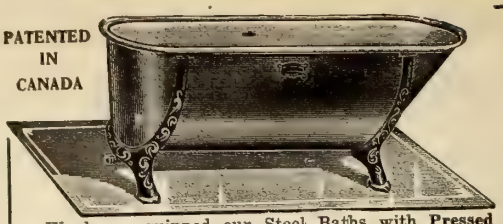
by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes ⅛-in. to 4-in. Black or Galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your Jobber for C. T. Brand Wrought Pipe

Canadian Tube and Steel Products Co., Ltd.

Operating Canadian Tube and Iron Co., Limited
Works at Lachine Canal, Montreal

PATENTED IN CANADA



Better Selling Value Than Ever

We have equipped our Steel Baths with **Pressed Steel Removable Legs** and 3 inch **Roll Rim** around the top, for which we have secured a Canadian Patent. This **Roll Rim** adds greatly to the selling value of

TWEED ENAMELLED STEEL BATHS

They now look like the expensive cast enamel baths but are the **same price** as before.
Our new patent Roll Rim Enamelled Steel Baths are now ready for shipment.—Order samples.

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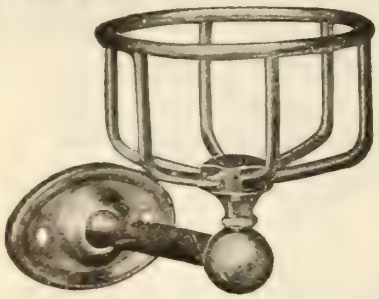

Makers of

Towel Bars
Soap Dishes
Paper Holders
Glass Shelves
Mirrors

THE GENDRON MFG. CO. Ltd., TORONTO

Easier to attach
More permanent
Cost less

Tapped Closet Bend

Bull Dog
Brand
Seats & Tanks

Strongly made of superior materials, and thoroughly proof against warping, opening, etc. Investigate the Bull Dog line of products.

HOURD & CO., LIMITED
London, Canada.

Easily Cleaned

The APEX Closet Bowl has special features that place it in a class by itself.

Clean-out device located at head of trap. Any obstruction can be located and removed in five minutes without disconnecting from floor or water. **Cannot overflow.** Silent in operation.

Find out all about the APEX before installing another closet bowl.

Canada Patents for sale.

THE APEX SUPPLY CO.

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ATTENTION! Contract Shops, Stores, Employers, Clerks, Mechanics, etc.

Our new HOME STUDY course in BUSINESS ADMINISTRATION is now ready for the trade. It teaches you the most modern methods of Business. Learn to extend your Markets; enlarge your Business; Learn to adjust all the business combinations to the limit. We build on top of your present Ability and give you a business training equal to the best.

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This Frown

results from business worries, from business losses caused by misquoting buying and selling prices, from uncertainty through not knowing my costs.

This Smile

represents the feeling of security that "Allpriser" has given me since I installed it, that feeling of Security that results in knowing that I'm making money on every job I handle, in knowing that I can give quicker and more intelligent estimates—in knowing that my business is being run efficiently and in knowing that I'm being justly rewarded with a fair profit for every effort.

Ask any one of the hundreds who are using the services of "Allpriser" and then get in touch with

K. B. ALLISON

4 Irvin Ave. - Toronto, Ont.

WHAT DOES THE NAME PERFECTO REGISTERED STAND FOR?

THINK what it means to have a line of brass goods that you can *depend* upon—to know a name that *guarantees* the quality of every article that bears it. To see the name PerfectO on an article is all the protection a plumber needs—because every PerfectO article is definitely and absolutely *guaranteed* by the manufacturers. PerfectO stands for *Perfection*—and that, in turn, means *satisfaction*. PerfectO Brass Goods will save your time—your money—and your reputation. Buy by the name—PerfectO.

Manufactured in Canada by:-

GALT BRASS CO., Limited

GALT - CANADA

Makers of the famous VitrO No Trouble Tank.

Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XVI. PUBLICATION OFFICE, TORONTO, MAY 15, 1922 No. 10

EMPIRE

"Emco"

Cast Iron Centrifugal Trap

When your customer asks for goods made in Canada the word Empire or "Emco" on each of our articles is his guarantee.

The engraving shows our new cast iron centrifugal trap. This trap has an adjustable nickel plated sink connection, and with its adjustable swinging elbow it is easily installed and makes a first class installation on sinks.

All Empire products are subjected to a rigid test before leaving the factory and are backed by our guarantee.

Sold by leading jobbers throughout Canada.

"Made of Iron Cast and are simply Unsurpassed"

Empire Brass Manufacturing Co.

Limited

LONDON and TORONTO, CANADA

Cast Iron Centrifugal Trap A-1829

Drinking Fountains

White, Clean, Vitreous, Sanitary

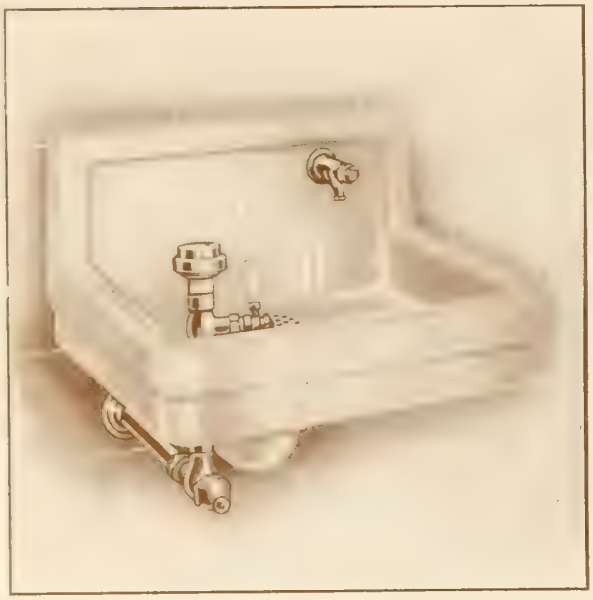


Plate 901

Dirt and germs will not readily cling to its smooth hard surface so that with a minimum of effort its original glistening whiteness will be retained after years of use.

The fittings illustrated are only suggestive. A variety of good sanitary bubblers are obtainable which will readily fit either of the patterns shown.

The moderate price at which these very desirable fixtures are furnished by us should ensure their installation in every public building.

The lustrous white clean surface of a Canadian Vitreous Drinking Fountain suggests the cool refreshing draught which can with safety be taken therefrom.

Canadian Vitreous China is the most thoroughly sanitary material of which a Drinking Fountain can be made. It is all clay, the same white, dense, substantial, strong, vitreous body through and through, with a beautiful hard, lustrous, live-white glaze surface, which cannot chip, crack, rust, discolor or deteriorate.

Plate 909

CANADIAN POTTERIES
LIMITED

SAINT JOHNS
QUEBEC

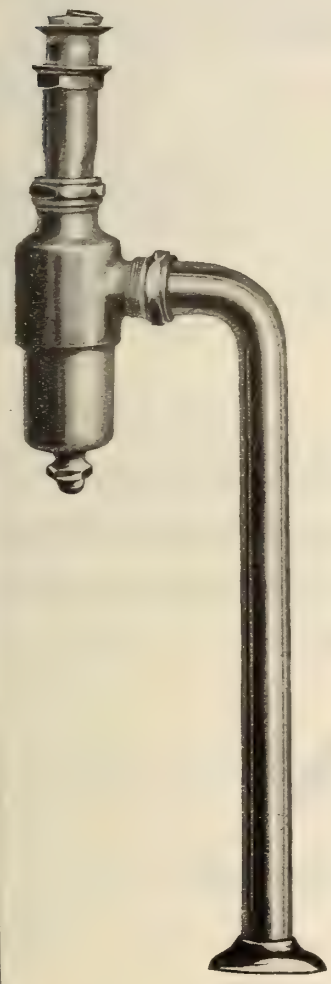
Sales handled exclusively through recognized jobbing houses

TRADE B.O.T. MARK

Syphon closets

QUALITY SERVICE

CANADIAN BRASS CO. LIMITED



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QUALITY SERVICE

CANADIAN BRASS CO. LIMITED

Like "Sterling"

CANADIAN BRASS GALT ONT

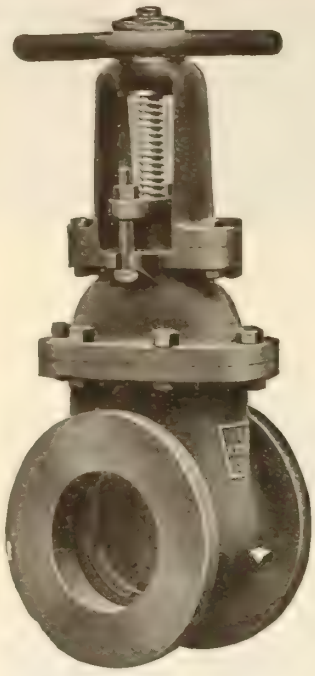
On Silver

Brass Goods

Hall Marks

TRADE B.O.T. MARK

Of Quality



Kerr Valves

Give

Character to Work

They reflect credit on the man who specifies them, the man who installs them, and they give complete satisfaction to the men who use them.

Take the Kerr Gate Valve illustrated, for instance: It is well designed; strong and sturdily made; note the compact and narrow face to face dimensions; observe the accessibility of the stuffing box; the strong, generous flanges and the properly spaced bolting.

KERR VALVES ARE GOOD VALVES

Catalogue No. 5 on application.

The Kerr Engine Co., Limited

Valve Manufacturers - Walkerville, Canada

Why are the

VULCAN

Pure Air Furnaces Superior in Radiation?

because they give off a more satisfactory amount of heat in proportion than any other furnace, on account of the greater total area of radiation surface.

Easy to operate
Profitable to install
Strongly constructed of heavy metal

THE VULCAN CO., LIMITED

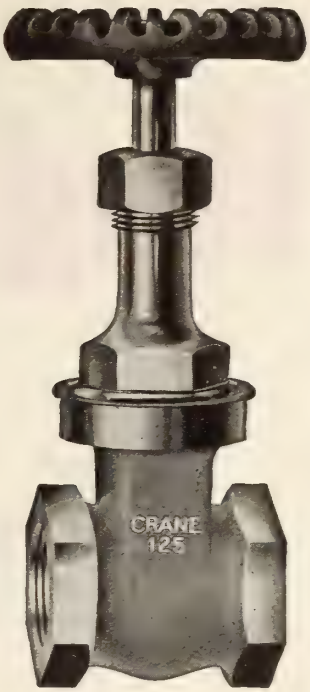
London - - Canada

CRANE

STANDARD

BRASS GATE VALVES

No. 440



DOUBLE DISC. PARALLEL SEATS

The Steam working pressure for which they are intended is Cast on the Valve.

Steam Working Pressures up to 125 Pounds.

Cold Water working Pressures, 175 Pounds.

These Valves may be packed when open and under pressure.

Manufacturers of Valves, Fitting and Piping Equipment for all pressures and purposes—and distributors of Pipe, Plumbing and Heating Supplies.

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1

Huge Oaks from

ANTHES

ittle Acorns Grow

This is a fact that seems to be forgotten when tile pipe is used where soil pipe should be used.

Thousands upon thousands of dollars are spent needlessly each year by Canadian householders who have to pay the price of the contractor who put a few extra dollars in pocket by using tile pipe instead of soil pipe.

Every Sanitary Engineer knows what happens when the root of a tree, for instance, comes into contact with tile pipe.

The moral of course, is to "Use Soil Pipe Where Soil Pipe Should be Used." Show the public why it's a good investment to pay the slight extra cost of using soil pipe and make it a "lifetime" job.

See that the name of "Anthes" is on every piece. It's your guarantee of all that's best in Soil Pipe and fittings.

Anthes Foundry

Limited

Toronto and Winnipeg

Manufacturers of

Cast Iron Soil Pipe and Fittings

ANTHES

A PIECE OF TABLE-WARE *may* be solid silver without the "sterling" stamp, the accepted "Hall Mark" of quality.

But you don't know.

A Bank might be honest and efficient without Government inspection.

But you don't know.

A business concern may be absolutely responsible without a commercial rating.

But you don't know.

A publication may have the circulation it claims without verification by the Audit Bureau of Circulations.

But you don't know.

Better be sure.

The circulation of Sanitary Engineer is verified by the A. B. C. Sanitary Engineer is the only publication of its kind in Canada that will supply an A. B. C. Audit.

A VALVE for EVERY SERVICE

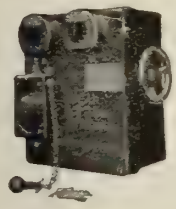
ELECTRIFICATION

Of High Pressure Steam and Water Valves

The control of remote valves from one or more stations

OUTSTANDING FEATURES

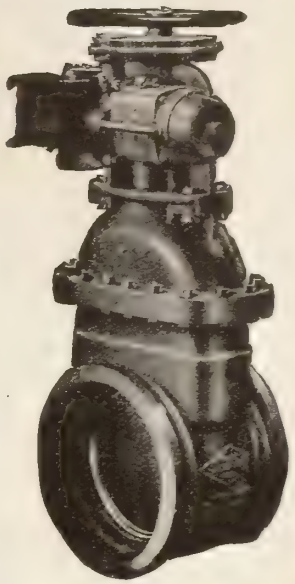
Bullseye Indicating Lamps



Dust Proof Control Station

Adaptable to Inside Screw and Rising Stem Valves.
Positive in Operation.
Standardized Equipment with Valve Manufacturers.
Operation from any Electric Circuit.
Short or Long Distance Control.
No Overtravel of Gate.
Heavy Unseating Blow.
Designed for any Pressure, Size or Location.

Our Engineering Department is at your service—write for full information.



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EUROPEAN BRANCH 6 GREAT QUEEN ST KINGSWAY LONDON, W.C.2 ENG.
AGENCIES IN ALL THE PRINCIPAL COUNTRIES OF THE WORLD.
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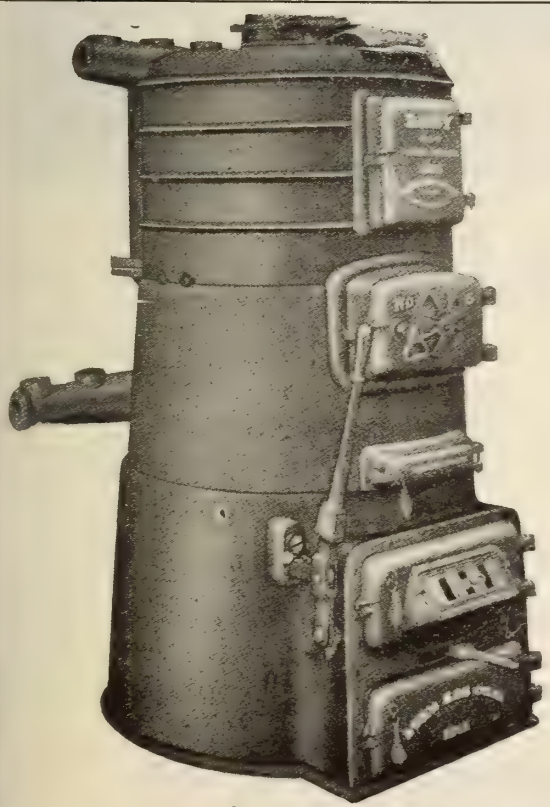

It's Joy to Own a Daisy

That's Why You'll Find Them Easy to Sell

DAISY

Hot Water Boilers

The Daisy is easy to understand, easy to operate, and easy to get good results with.

Daisy Boilers will run with surprisingly little attention. They burn easily and steadily. The water is quickly heated and easily kept hot with a minimum consumption of fuel.

The best help you can have in selling a Daisy Boiler is to send your prospect to interview your last customer—they're always satisfied—delighted—with the Daisy.

WARDEN KING, Limited, Montreal

Branch Office: 136 Simcoe St., Toronto

"Standard" PLUMBING FIXTURES

Better Bath Rooms Make Better Homes

Many new high class homes now under construction will contain ordinary, every day plumbing fixtures unless owners and builders are familiar with the better designs of fixtures that really add only a small percentage to the total cost of the plumbing equipment.

Show your customers how "Better Bathrooms" can add to the value of the house and to the comfort and convenience of the occupants, and you will have gone a long way towards securing a more lucrative contract.

Standard Sanitary Manufacturing Company Ltd.

Royce and Lansdowne Avenues
TORONTO, ONT.

SANITARY ENGINEER
PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907 PUBLISHED TWICE MONTHLY

Vol. XVI. PUBLICATION OFFICE: TORONTO, MAY 15, 1922 No. 10

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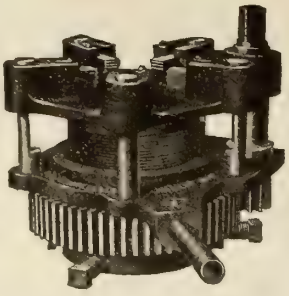

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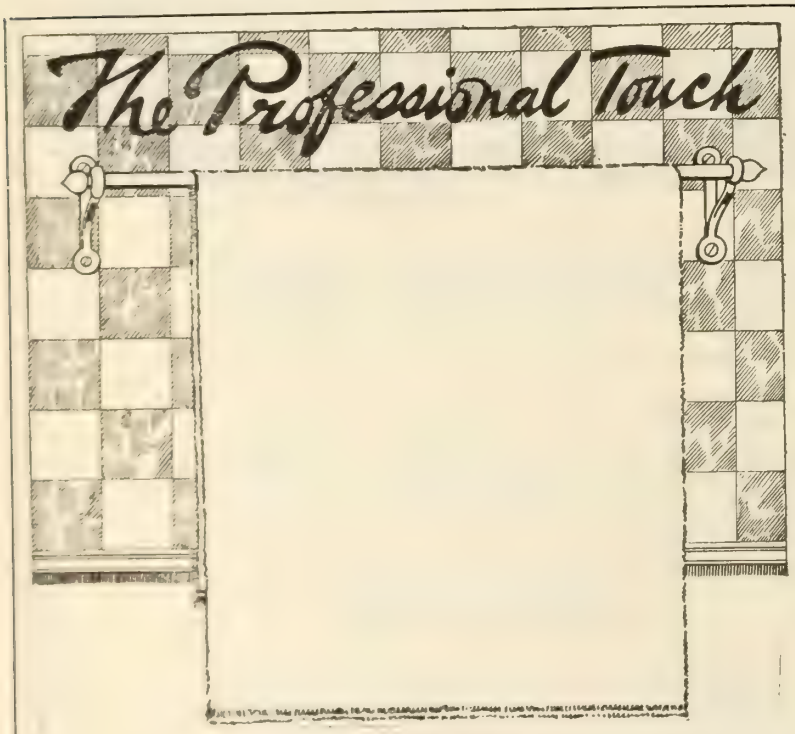

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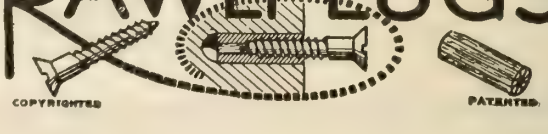

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Master Plumbers Ask for Higher Fee

Delegation from Montreal Master Plumbers' Association Requests That the License Fee of a Master Plumber be Increased from $5.00 to $200.00—Present Charge Does Not Ensure Competency, and Also Endangers Public Health

Editor's Note:—For a long time sanitary and heating engineers have been looking for some effective means to put an end to the fly-by-night type of operator who provides unfair competition and lowers the standard of workmanship of this industry. This is the despised type of operator who works from a basement and who does all sorts of handy-man jobs such as the sanitary engineer of to-day is trying to break away from. At present when so many journeymen and helpers are going into business for themselves due to the scarcity of work as employees this question becomes an important one. The action of the Montreal Master Plumbers' Association in asking a big increase in the license fee will probably have considerable effect on this situation.

A DELEGATION from the Montreal Master Plumbers' Association has waited on the Executive Committee of the City Council with a recommendation that the license fee of a master plumber in the city be increased from $5.00 to $200.00. The delegation made it quite clear that their mission was an endeavor to safeguard their reputation, and also protect the public from people who were now undertaking plumbing work of an inferior kind, and who undertook no responsibility in connection with their work, thus bringing the whole trade into disrepute. The by-law was pointed out which states that anybody can now get a master plumber's license on payment of a fee of $5.00 and the passing of a brief examination.

Danger to Public Health

The consequence was that many men who were journeymen plumbers in the employ of master plumbers, could secure a master plumbers' certificate and after their regular hours undertake jobs of installing plumbing and heating apparatus at cheap rates, and without a full knowledge of the requirements of the work. Having no place of business there was no redress against them, and they did not accept any responsibility for what they did. It was contended that this was a danger to the health and safety of the public, and that if the initial fee of examination was raised from $5.00 to $200.00, in order to secure a master plumber's certificate, and a renewal fee placed at $50.00 a year, it would be a safeguard to the public, and ensure that only responsible men with a place of business would establish themselves as master plumbers and accept responsibility for the work they undertook.

Not for Selfish Reasons

The secretary of the association, D. K. Trotter, introduced the delegation and emphasized that their request was not being made for selfish reasons, but in the interest of the public. H. Lavigueur, president of the association, outlined the attitude of the association, and declared that they had for years been seeking a remedy for the ever increasing irresponsible and sometimes unscrupulous workmen who were installing plumbing and heating systems in such a manner as to endanger the health and safety of the public. Journeymen working for master plumbers could get a master plumber's certificate and undertake a job and then return to their regular work as journeymen, their work often being shoddy and unsanitary.

That the request of the delegation would receive careful consideration was promised, the Executive Committee expressing pleasure that extra money would be coming to the city. However, it was pointed out that it would not be possible to make the amendment this year as the license fee was fixed in the by-law passed in December, and the city would have to get authority from Quebec Legislature to change the scale, and this could only go into effect the following May.

The delegation was headed by H. Lavigueur, president of the Master Plumbers' Association, and other members including Mayor James Ballantyne, of Montreal West, J. E. Walsh, T. Latourelle, D. A. Bethune, P. C. Ogilvie, W. R. J. Macaulay and A. Charrette. Two members of the executive committee, Ald. T. O'Connell and Ald. Turcotte, are past presidents of the association, and fully endorsed the attitude of their confreres in business.

Not After the Smaller Man

Mr. Lavigueur, when interviewed by Sanitary Engineer, stated that the mission of the delegation was another step taken by the association in the hope of improving local conditions, and the plumbing trade in general. Unfortunately in the city there was a certain amount of criticism in connection with the class of work sometimes brought to light, and this reflected on the association, and the legitimate master plumber who was in most cases not to blame. The city was growing, and with this came an increasing number of inefficient and careless workmen who were encouraged by the present law. He pointed out instances which he had personally encountered where his men had been called out on repair jobs to find the whole installation badly put in. Upon making enquiries, very often it was the work of some incapable journeyman, or even worse, someone not knowing the first requirements of such work. If the higher fee was made necessary it would allow more money for inspection work, as at present it is utterly impossible for the staff of inspectors to follow all work being done.

(Continued on page 12)

Propose One Association in the West

Plans Discussed for Inter-Provincial Association Grouping Four Western Provinces—Conditions Not Right for Trade Extension Bureau—Conference re Sub-contracting—Was Referred to Sanitary Engineer for Canadian Society Convention Report

ON SUBMITTING my third annual report, I must say I am again disappointed at the slow increase in membership. With what we have to offer, and with the district committees functioning as they were intended to when this form of organization was adopted, there is no reason why we should not swell our numbers. In numbers there is strength, and with a divided house it is hardly expected that we can obtain our just rights from the principal groups we have to deal with, namely the provincial and municipal authorities and the manufacturers and jobbers.

Immediately after the adjournment of the last convention, your committee together with Mr. Green of the Saskatchewan Association, met and discussed the aims and objects of our proposed Inter-Provincial Association, grouping the four western provinces, and submitted them to the two remaining organizations, namely the British Columbia and Manitoba, in our efforts to organize. We did not get a reply from Manitoba, and while British Columbia saw the necessity of such an organization, they did not see their way clear to join us. Since then we have been in communication with both these organizations and we still have hopes for an organization along these lines.

After getting all the data prepared for the publishing of a magazine, and submitting it to all the members and getting practically no support from them we felt that we could not afford the time ourselves to solicit advertising, so the matter was dropped.

Trade Extension

On receiving all the information from the National Trade Extension Bureau of the United States we came to the conclusion that this would be of little use to members on this side of the line. We then got into communication with Mr. Minnes of Brantford, who seemed to be the father of the Canadian movement, who told us that he had worked on this movement for two years and found there was not sufficient interest taken in it by the manufacturers and jobbers or the operative plumbers. He has contributions of approximately $5,000.00 but found this not sufficient to carry on the work at present, owing to trade conditions as they are to-day, and the matter of out of work journeymen aggravating conditions by starting in business for themselves. He has decided to let the matter drop for the present.

While talking to one of the wholesale representatives a short time ago the question came up as to why we were not living up to the Provincial Plumbing By-Law in the matter of material as provided for in that by-law. I think we should decide at this meeting if we are going to live up to it or not. While we did not get all we wanted, still I feel it is a stepping stone to something better. At the present time it appears our only hope for help is in the Provincial Health Department, as I think that the cause of the deplorable condition of our trade to-day can be laid at the door (in some of our cities) of our civic authorities. The Lethbridge members can be congratulated for having civic officials with sufficient backbone to protect the men doing business in their city. Before leaving this subject I wish to draw your attention to one branch of our craft that has received very little attention. I refer to the steam fitting trade. While I do not wish to create any cleavage between the two trades I think that steam fitting is of sufficient importance to receive some consideration at your hands. We have in Calgary a supposed protective for steam fitters, but up to the present it is only a farce. As I said before our only hope is with the provincial government.

R. J. PRIESTLY

Calgary, Alta., who was re-elected president of the Alberta Association of Sanitary and Heating Engineers at the last convention.

Your executive board has arranged a conference with the architects and builders re sub-contracting and I hope that the outcome of this conference will be brought to a satisfactory conclusion.

I am unable to lay before you a report (with the exception of the receipt of dues) from the Dominion Association. We have twice written for the proceedings of their last convention. Once we were referred to "Sanitary Engineer" and had no reply to our last letter.

I believe our relations with the wholesalers during the past year have been fairly satisfactory and I hope for a continuance of the good feeling.

Before I conclude I must again draw your attention to the need of enlarging our membership. Such a thing is of vital importance if we are to do more than exist, for as we stand now we seem to be doing nothing but floundering: so for the coming year let me urge upon each one of you to make a special effort to get a new member and not to leave it to the other fellow to do so.

In concluding, it is my very painful duty to record the sad loss we have sustained in the death last May of our late secretary Mr. E. P. Fletcher. He was ever a faithful and zealous worker in the interest of the plumbing trade. It is to his credit the present plumbing by-law and examinations in this city are due. I am sure our sympathy goes out to the widow and children from whom he is parted.

MASTER PLUMBERS ASK FOR HIGHER FEE

(Continued from page 11)

When asked if $200.00 would not be considered too high by a number of master plumbers, Mr. Lavigueur said he was sure this figure would be agreeable to all. In many large cities the fee was even higher than this, and if the new law called for $200.00 for the initial fee, with $50.00 a year for renewals, the remedy that would be forthcoming would be well worth the increase. "If we are going to bring the plumbing trade to its proper higher level, we must keep out the lower class of workmanship. Not the smaller man by any means, for there is room for all of us, but the one who cares little or nothing for his own reputation nor that of the trade. Any one who wishes to commence in business is surely anxious to start in a legitimate way, and will be willing to expend the extra money," concluded Mr. Lavigueur.

Alberta Ass'n. Withdraws From the Canadian Society D.S. & H.E. Due to Dissatisfaction

Annual Convention of Alberta Association of Sanitary and Heating Engineers Recommends No Action at Present On Canadian Trade Extension Bureau—Ask Plumbing and Heating Contracts be Made Separate from General Tenders

THE question of relations with the Canadian Society D. S. & H. E., the question of supporting Montreal master plumbers in their efforts to bring about improved relations with manufacturers and supply firms, methods of tendering to protect sanitary and heating engineers, were among the important topics discussed at the convention of the Alberta Ass'n. of Sanitary and Heating Engineers held in Oddfellows Hall, Calgary, Alta.

The meeting was called to order by President R. J. Priestly and an address of welcome was given to outside delegates by J. H. Hillier, President of the Calgary Association. Mr. Hillier took this opportunity to extend an invitation to all the delegates to attend a banquet to be held in the Board of Trade Rooms. C. R. Frost, Edmonton, responded to the address of welcome to the visiting delegates in a few well-chosen words.

The following special committees were appointed:

Press Committee: W. H. Kelcher, Edmonton, J. H. Hay, Calgary.

Credential Committee: H. C. Phelps, Calgary, G. L. Gothard, Wetaskiwin.

Correspondence Committee: J. Mckenzie, Edmonton, F. W. Flett, Cardston.

Auditing Committee: F. Hick, Lethbridge, H. Ferris, Edmonton, D. Campbell, Medicine Hat.

Officers Report Committee: J. Dignan, Drumheller, R. W. Snyder, Calgary, G. L. Gothard, Wetaskiwin.

Sergeant at Arms: R. W. Snyder, Calgary.

The secretary called the roll and read the minutes of the last annual meeting.

Moved by J. H. Hillier, seconded by J. B. Rogers, that minutes be adopted as read. Carried.

Moved by C. R. Frost, seconded by J. H. Hay, that G. W. Henderson assist the president and secretary in reading communications, etc. Carried.

Montreal Plumbers Ask Co-operation

The following correspondence was read:

From the Master Plumbers' Association of Montreal, asking the co-operation of this Association in having remedied the existing unsatisfactory conditions in relation to manufacturers and the plumbing trade.

From the Director of Technical Education with reference to the organization of courses of study for apprentices, etc., in the plumbing and heating trade at the Provincial Institute at Calgary.

From the Employers' Association, Winnipeg, re supplying members' names for the purpose of distributing trade magazines.

The letter from the Montreal Association was referred to committee for report.

The Committee appointed included R. MacQuarrie, Edmonton, J. Marr, Sr., Calgary, D. Campbell Medicine Hat.

Moved by W. H. Kelcher, seconded by C. R. Frost, that secretary be instructed to supply Employers' Association, Winnipeg, with the names of the members as requested.

At this time the report by President R. J. Priestly, Calgary, was received, also that of vice-president F. Hick of Lethbridge.

Secretary Makes Report

The report submitted and read by sec.-treas. H. C. Phelps, Calgary, was as follows:—Gentlemen:—I have much pleasure in submitting the following financial report of our association to date:

By cash received	$712.34
Cash paid out	460.19
Balance on hand	252.15

This shows a small improvement over last year's balance sheet, but if the members had sent in their dues as they were asked to do, my bank balance would have been much larger. Of course we generally manage to make a good showing at the last moment, but if the members would endeavor during the coming year to pay their dues more promptly, it would make the secretary's work easier, and the association would have the funds on hand to meet the necessary expenses which have to be paid promptly.

(Signed) Hubert C. Phelps, Sec.-treas.

Moved by G. W. Henderson, seconded by G. L. Gothard, that the president's report be received and handed to the Officers Report Committee, and that the president have power to add to this committee as many as he sees fit. Speaking to the motion, Mr. Henderson said there were some very strong points which should have serious consideration. The president then added the following names to the committee: H. Cole, Edmonton, L. Michael, Gleichen.

Executive Committee Report

Executive Committee's report presented by C. R. Frost as follows: Your Executive Committee met in Calgary the day previous to the opening of this convention. They had a conference with two members of the governing board of the Alberta Architects' Association, and the president of the Architects' Association, and three members of the builders' section of the board of trade. The question of sub-contracting was discussed at some length. We pointed out the difficulties and injustice suffered by our members in the hands of the general contractors. The architects and the builders to some extent saw the force of our argument. After much discussion the architects advised us that they would take this matter up at their meeting which was being held that evening, and advise us of their decision at a later date and we hope a further report will be made before the adjournment of this convention. We also beg leave to report we discussed the following questions and believe some action should be taken thereon at this convention.

(1) The question of loss of labor on account of defective materials.

(2) The reduction re present high cost in price of enamelware and heating goods.

(3) The Compensation Act—Letter 61.

(4) Wage Scale.

(5) Reduction of freight rates on all building materials.

(6) Housing scheme.

ELECTION OF OFFICERS

Officers elected by the Alberta Association Sanitary and Heating Engineers for 1922-23 are as follows:—

President—R. J. Priestly, Calgary (re-elected).

Vice-President—C. R. Frost, Edmonton.

Secretary - Treasurer — H. C. Phelps, Calgary.

Executive Officers — D. Campbell, Medicine Hat; G. W. Henderson, Calgary.

Chairmen of Committees:

Sanitary—Jas. Marr, Sr., Calgary.

Heating—F. H. Lepper, Calgary.

Legislative—W. H. Kelcher, Edmonton.

Apprenticeship—J. H. Hay, Calgary.

Essay — D. Campbell, Medicine Hat.

District Committees — W. Holberton, Lethbridge; G. F. Scott, Medicine Hat; J. Dignan, Drumheller; R. W. Snyder, Calgary; G. L. Gothard, Wetaskiwin; J. Carver, Edmonton; T. Robertson, Camrose.

(7) Re-affiliation as a body of this association with the Western Provincial Building Industries.

Sanitary Committee Report

The Sanitary Committee's report read by Jas. Marr, Sr., Calgary, was as follows: "In making this the third annual report for sanitary committee, nothing of serious import has transpired during the past year, not having anything further to report on the subject of cutting costs on installation as demonstrated at previous convention, further than to report progress. I have some idea of a new style of closet bowl for use in the proposed lowering of costs that may be to the advantage of the trade but not yet far enough advanced to submit at this time.

(Signed) Jas. Marr.

The Heating Committee report read by C. R. Frost, Edmonton, appears elsewhere.

Adjournment was made for lunch after reports of various districts were heard, as outlined in this issue.

After lunch an address by J. Bradshaw was followed by short addresses from the representatives of the different wholesale houses of Edmonton and Calgary on the value of co-operation, trade conditions, etc.

Moved by W. H. Kelcher, seconded by G. L. Gothard that a hearty vote of thanks be tendered to Mr. J. Bradshaw, Mr. J. H. Ross, and Mr. G. Hughes for the interesting addresses given to members, as outlined elsewhere in this issue.

Mr. Hillier announced that a bowling game was being held in the evening between the north and the south.

Friday Session

Report of Credential Committee was as follows: Mr. President: We find all members present qualified to remain. The morning session was then declared officially opened.

Report of Auditing Committee, Alberta Association of S & H Engineers.

The Auditing Committee have much pleasure in reporting that they have audited the books of the sec.-treas., and find same to be correct. We also wish to commend the association on its financial condition. After all expenses are paid we find cash on hand to be $238.55 with additional cash of over $100.00 being paid since.

We would suggest that members try and have their dues paid more promptly, also recommend that salary of sec.-treas. be $100 00 per year.

(Signed) Fred Hick, H. Ferries, D. Campbell.

Report of Correspondence Committee

(1) In reference to trade extension bureau; your committee would recommend that no action be taken at this time, and that the incoming officers keep in touch in the event of a Canadian Trade Extension Bureau being formed.

(2) Re the forming of an inter-provincial association: We would recommend that the president keep in touch with the presidents of the different provincial associations.

(3) In view of the unsatisfactory reply from the Dominion Association we would recommend that this association discontinue its membership with the Dominion body.

(Signed) J. A. McKenzie.

These recommendations were all carried.

Report of Officers Committee

We your committee beg to submit the following report:

Re president's report:—We recommend that the following clauses in the report be taken up for discussion under unfinished business, and the balance of the report be adopted.

(1) Inter-provincial association.

(2) Re provincial by-laws.

(3) Re conference with architects re sub-contracts.

(4) Re Dominion Association: Recommend it be dropped at present.

(5) Re membership; be brought up for discussion.

(6) We recommend a letter of sympathy be sent to Mrs. Fletcher and family from this association.

Re vice-president's report:—We recommend the adoption of this report.

Re report of committee on letter from Montreal Association:—Your committee recommends that the resolution be adopted.

Moved by C. R. Frost, seconded by Jas. Marr, Sr., that letters be sent to the manufacturers, also to the Montreal Association advising them of support.

Executive committee made further report that in future all plumbing and heating contracts where possible would be let separate from the general contract and where not possible, the plan used by the Provincial Public Works Department would be adopted.

Moved by R. MacQuarrie, seconded by R. W. Snyder, that the report be adopted.

Oppose Levies Imposed

Moved by G. W. Henderson, seconded by R. W. Snyder, that secretary be instructed to write the compensation board re their letter No. 61 and protesting the levies imposed upon us in order to protect other trades. Carried.

In the afternoon session consideration was given to the Executive Committee's report.

(1) Moved by C. R. Frost, seconded by G. L. Gothard, that this association in convention assembled instruct the secretary to send a letter to the Alberta wholesalers and the manufacturers of plumbing and heating materials protesting against the loss of labor due to defective materials. Carried.

(2) Moved by W. H. Kelcher, seconded by M. V. Anderson, that this association in convention assembled recommend that a letter be sent to the manufacturers of enamel ware in reference to the high cost of their product which makes up about two thirds of the cost of plumbing installations, also bringing to their attention the fact that our trade is being held up to the public also being responsible for holding up building because of continued high cost of materials entering into construction of same, and a letter along the same lines be sent to the manufacturers of heating goods. Carried.

(3) Compensation Act was dealt with in a previous motion.

Supply Firms and Apprenticeship Plans

Edmonton Conducts Classes in Theory and Practice of Plumbing—Supply Firms Provide Material for Instruction in Practical Work

Report of Apprenticeship Committee presented by JAS. CARVER to Alberta Association Convention of Sanitary and Heating Engineers

AS CHAIRMAN of the apprenticeship committee, I wish to report that I have sent communications to all the chairmen of the district committees, appointing them as members of the apprenticeship committee, as directed at the last convention, also advising them of the ways and means, that employers have decided to take in making the apprentices into first class craftsmen.

The Edmonton Society of Domestic and Heating Engineers are conducting classes in theory and practice of plumbing. The Edmonton plumbing wholesale houses are very pleased to give us their assistance by supplying material for the instruction of the practical part and I have much pleasure in saying that the apprentices are making good progress up to the present time. There is one thing very noticeable in these classes, and that is that you do not get the same apprentices as the previous year, which means you have got to start at the beginning of each season with the same work, which may be accounted for owing to conditions in the building trade. No doubt this will rectify itself in the future.

Local 488 of Edmonton is also beginning to get interested in this work, as quite a few of the journeymen have been attending the classes, which shows they are beginning to see the advantage of technical education.

Hoping that in the near future the school boards and the provincial government will be interested in this work.

(signed) Jas. Carver

Group picture of delegates to the convention recently held in Calgary, Alta., of the Alberta Provincial Association of Sanitary and Heating Engineers. R. J. Priestly, who was re-elected president, is sitting immediately behind the man seated on the ground, and H. C. Phelps, secretary-treasurer, is on Mr. Priestly's left.

(4) Wage scale:—Moved by W. H. Kelcher, seconded by H. Ferris. that wage scale be adopted as suggested by the Western Construction Industries at their recent meeting.

Moved an amendment by M. V. Anderson, seconded by G. L. Gothard, that the maximum wage throughout Alberta be 90 cents an hour. Carried.

Moved by E. J. Young, seconded by C. R. Frost, that we endeavor to have all trade agreements signed on or before the 31st of January and come into effect on May 1st. Carried.

(5) Moved by G. W. Henderson, seconded by G. L. Gothard that a letter be drawn up and forwarded to the proper authorities protesting against the high freight rates on all building materials and endeavor to get same reduced. Carried.

(1) Moved by F. H. Lepper, seconded by H. Ferris that clause 6 be dropped.

Moved an amendment by R. MacQuarrie, seconded by C. R. Frost that this matter be taken up by executive committee with Provincial Association of Building Industries when same is organized. Carried.

(7) Moved by G. W. Henderson, seconded by F. W. Flett; that the affiliation of this association with the Provincial Association of Building Industries, when organized be left in the hands of the executive committee. Carried.

Samples of Buttons

As instructed at previous convention the secretary laid before members samples of trade buttons. It was moved by J. H. Hillier, seconded by Geo. Henderson that executive committee be instructed to give the necessary information to Provincial Education Department as asked for in their letter re technical education.

Re consideration of the auditing committee report: they recommend that the $100.00 be reduced to $50.00 Moved by R. MacQuarrie, seconded by M. V. Anderson, that expenses of president, sec-treasurer, and officers of executive be paid while attending to business of Provincial Association. This does not mean that officers' time lost shall be included in expenses.

Moved by G. L. Gothard, seconded by W. Nichol, that in the event of the officers being removed from Calgary, that a trustee be appointed to look after price book and charge sheets.

W. H. Kelcher re-read the legislative committee's report and explained that provincial plumbing by-laws take precedence over plumbing by-laws already in existence in cities, towns and villages. Moved by R. MacQuarrie, seconded by D. Campbell, that the clause in legislative committee report re plumbing by-law be adopted. Re incorporation in legislative committee report: Moved by R. MacQuarrie, seconded by M. V. Anderson, that report be adopted. Moved by W. B. Trotter, seconded by H. Dean, that legislative committee be instructed to incorporate this association under the Benevolent Society's Act, provided the cost does not exceed $25.00.

Moved by W. B. Trotter, seconded by R. W. Snyder, that the members of this association adhere to provincial plumbing by-laws and where city regulations conflict with provincial regulations, local associations take necessary steps to insure uniformity. Carried.

An invitation was extended by the delegates from Edmonton and Medicine Hat to hold the next convention in their respective cities. After the vote was taken it was declared that next convention be held in Medicine Hat.

(Continued on page 19)

Steps to Increase Ass'n Membership

THE report submitted and read by vice-president F. Hick, Lethbridge, was as follows:

As vice-president of the association, I have much pleasure in submitting my report, although I have not had very much to do owing to the present conditions. On behalf of the Lethbridge association, we still are holding our own during the very trying times. We would like to see members of cities better protected from outside competition.

I would ask all members of the association to try during the coming year to get in touch with any members of the trade who are not associated with us and try to explain to them the benefit we are deriving and which they also could receive themselves. If we are ever to have a good strong association each and every one of us should work to that end.

Ever since the association has been in existence we have had bad times which has made things very discouraging and therefore we need the support more than ever.

Trusting all members will start this year with the determination to make the association a success and hoping you all will have a prosperous year, I beg to remain

(signed) Fred Hick, Vice-President.

Local Conditions Outlined in Reports

Reports from Chairmen of Various Local Committees Throughout Alberta Deal with Troubles Encountered and Progress Being Made in Organization—Value of Price Book and Other Services Offered

REPORTS of Chairmen of District Committees were received as follows:

CALGARY

"I have much pleasure in submitting the following report as chairman of the Calgary district.

No doubt most of you are familiar with the present trade conditions throughout the province. In order to try and improve these conditions the Calgary Association is only too willing to help or take up any matter that any member of this district considers of benefit to the trade. I am very pleased to report that the members of the Calgary Association are doing their best to uphold the standard in the plumbing and heating trades. Wishing all the members of this association a successful year.

(Signed), J. H. Hillier,
Chairman Calgary District Committee.

MEDICINE HAT

"I hereby attach my report for Medicine Hat district. Conditions as you are aware are very bad and prospects seem very poor for the coming year. In the Medicine Hat District we have one shop at Taber, one at Redcliffe, and six in Medicine Hat. We have four members belonging to our association namely; D. Campbell, E. L. Cope, C. L. Perkins, and Marsh and Scott.

We will endeavor to try and get these other fellows lined up and try and get them into the association, and trust that the 1922 chairman of the Medicine Hat district will be able to show on his report where these other shops have become members of the association.

(Signed) J. P. Marsh,
Chairman.

CAMROSE

"It has been a very difficult matter to get any of the shops in this district to take any active interest in the affairs of our association. I have written several letters to outside firms but I am sorry to report that I have not had any replies from them.

There are approximately 12 shops in this district, but I don't think that they get any jobs that amount to much, and in most cases the work is handled by men sent from the city.

I still endeavor to keep in touch with the shops in my district and should I have occasion to be in their territory I will call on them personally and see if I cannot interest them in the work of our association.

The following is a copy of a letter which I sent out to the plumbing shops in my district.

"Re the Alberta Association of Domestic, Sanitary and Heating Engineers. We are again desirous at this time to write you and ask that you give some serious thought towards joining the above association. As a member of this association for the past two years I can speak from experience and say without hesitation that you will never regret becoming a member; the fee is only $5.00 per annum, and the benefits derived cannot be estimated. The price book got up by the association, and kept up to date is a real money maker as well as a great time saver."

"The annual convention will take place shortly and you will be advised accordingly. If at all possible come to this convention, and you will not regret it; in the meantime if you are desirous of joining the association write H. C. Phelps sec.-treas. 930, 2nd Ave. N. W. Calgary. I might say that at the last convention it was decided to divide the province into districts and appoint a chairman for each district and to endeavor by this plan to get into better co-operation with each other, and secondly to help the work of getting together a local body that will help the association."

"Our district is bounded on the north by Tofield, on the south by Big Valley, on the east by the boundary, and on the west by Camrose. If you know any plumbers near you in business, ask them if they have received a copy of this letter; and with regard to yourself I would esteem it a personal favor, if you would write in reply giving your views. If you are already a member, write and give your views on the aims of the association and let us get in contact with each other for the betterment of the trade."

(Signed), Tom Robertson, Chairman.

NORTHERN DISTRICT

"There has been very little organizing done in the northern district during the past year outside of the city of Edmonton. We wrote several in the plumbing and heating business in outlying districts but received no answer from them.

Our organization in Edmonton is I am pleased to report in a fairly good condition; there being at present only four shops in the city that do not belong to our association; and two or three of these I think will come around after we get our agreement signed up with the union.

(Signed), R. MacQuarrie, Chairman.

Ask Change in Regulations re Licensing

Legislative Committee Asks Insertion of Clause In Regulations Outlining Composition of Board to Pass on Granting of Licenses to Master Plumbers —Report on Incorporation

Report Presented to Convention of Alberta Association Sanitary and Heating Engineers by W. H. KELCHER, Chairman Legislative Committee

THE Legislative Committee beg to report that we have taken up with Mr. Owens, Provincial Sanitary Inspector, the different items referred to us in connection with the provincial health regulations. Mr. Owens has revised throughout the health regulations and has made the alterations in the several clauses referred by us.

The clause which we asked to be inserted in the regulations regarding the licensing of master plumbers or domestic sanitary engineers is included in the new regulations as follows:

"A board to be appointed composed of one member of Masters Association, one member of International Plumbers Union and Mr. Owens, Sanitary Engineer, as chairman, who shall have charge of granting licenses to master plumbers or domestic sanitary engineers."

These new regulations cannot be finished until certain amendments to the Health Act are passed at the present sitting of the legislature. The whole of the revised regulations will be submitted to the cabinet after the close of the present session for their approval, after which same will be printed and distributed.

Your committee have been requested to report on the question of incorporation of the provincial association.

We find that incorporation can be obtained under the ordinance respecting benevolent and other societies, the cost of this incorporation being five dollars ($5.00). If incorporation is desired similar to that of the civil engineers it would be necessary to have a special act put through the legislature, the printing of which alone would cost one hundred dollars ($100.00) and the total cost would run between two hundred ($200.00) and three hundred dollars ($300,00). Should incorporation under the ordinance respecting benevolent and other societies be deemed advisable, your committee have in hand a copy of the ordinance and also a sample incorporation of another branch of trade which would be a guide for our association.

All the above is respectfully submitted for your consideration.

(signed) W. H. Kelcher,
Chairman Legislative Committee

Educating Public Re Heating Methods

Owners, Architects and Builders Look to Heating Engineers for Competent Advice on Heating Problems—Keeping Abreast of the Times—Service Means Heating and Heating Means Service —Heating Equipment is Only Half Bought Until it is Installed

Report to Alberta Association Sanitary and Heating Engineers of C. R. FROST, Chairman Heating Committee

IT HAS been my privilege to be chairman of your heating committee for the past year, and I would like at this time to offer some suggestions for your consideration, so that by mutual discussion we may all take back from this convention some material good. It is not my intention to enter into any discussion on the merits of any particular heating system, but rather to submit to you some suggestions of a general nature. We have all, I believe at the present time, with the high coal costs, a wonderful opportunity to educate the public to understand and appreciate modern heating methods, to guide their choice so that they may decide on the particular system best suited for their purpose, and the one that will be most economical in fuel.

Owners, architects and builders look to you for advice, and to be able to give this advice intelligently we must make ourselves familiar with the conditions of the particular building to be heated, as we all know that every prospective heating contract offers new problems to be solved. We must study the building to be heated, the location of the radiators so that they will be most efficient, the position and size of the boiler, as any system is to work satisfactorily must be properly balanced. The size, location and construction of the chimney is one of the points in a successful heating system that must be carefully considered. The fact is that the heating engineer is held responsible for both the design and construction of the heating system from start to finish, if from any cause it fails to heat the building. If you are not satisfied with the design of the plant that you are called upon to install it would be better not to accept the contract than to install a system that you know will not prove satisfactory as one unsatisfactory system does a man's business reputation more harm than a number of successful ones do good.

Giving Thought to Estimates

Some of us when called upon to make an estimate either of a new job or old do not give to it the thought that perhaps we should. We do not take the time to figure out the wants of the particular piece of work, the construction and the use of that particular building. Each job no matter how small should be laid out accurately, so that size of the boiler and radiation, location and size of the mains be figured out to make an intelligent estimate.

The heating engineer to be successful must understand the science of heating, he must keep abreast of the times by the study of good technical works and follow the problems and discussions in the trade papers. To say that a man has "served his time" in these days is not sufficient, he must keep abreast of the times by study. The experience and results of experiments of the world's best authorities on heating are available to us to-day at a very small cost, and we would do well to avail ourselves of this knowledge.

What we need to-day in the heating business are more "peptimists." The optimist is the man who thinks it can be done; the pessimist is a man who knows it can't be done; while the peptimist is the person who gets busy and does it.

If there is one business more than another which should be ruled by service it is the business of the heating engineer. Unless the installation of heating equipment serves the customer, the labor and material put into the job are so much dead loss. Every employer and employee should radiate service. It should be so prominent that the public will come to think of the heating engineer as a real benefit to the community in which he lives.

Service is a much overworked word. But it is the only word we can use, for it conveys a meaning we want everybody to understand.

Service means to serve, and to serve means to minister to; to fulfil a purpose; to do the work a thing is supposed to do.

Roll all the definitions of service into one little phrase and it will mean just this; the object of all heating. Let us say it again. Service means heating and heating means service.

From the day a boy enters the heating trade as an apprentice until he goes on his last trip, Service should be kept before him all the time. For without service, heating means nothing.

When you buy a sewing machine or a piano or a phonograph, you buy it and it is delivered, and that is the end of it. But when you buy heating equipment, it is only half bought until it is fully installed.

So, then, into the work of placing and fitting each piece of equipment is crowded the limit of service—a service that ministers to your comfort and well being throughout the years.

(signed) C. R. Frost, chairman.

Progress of Technical Education in Alberta

Special Technical Training for the Youth Has Three Functions—Various Methods by which Practical Work is Supplemented by Technical Training

Extracts From Address of J. H. ROSS, Principal, Provincial Institute of Technology and Art, before Alberta Association Sanitary and Heating Engineers

J. H. ROSS, Acting Principal of the Provincial Institute of Technology and Art gave an interesting address showing what the provincial government is doing in providing technical education. Some excerpts from this address are given as follows;—

"The School and other training for the youth has three main functions to perform:

(1) How to support himself and his dependents.

(2) His duty to the country that gives him his protection.

(3) His duty to his fellow citizen."

"Knowledge or skill may be acquired (1) by experience, (usually costly and lengthy), (2) by being told (reading, verbally) or (3) by being shown (watching some one do it). But the best method when dealing with students or apprentices is to: Tell them how to do it; show them how to do it; and then have them do it."

"There are several methods by which the practical work of the apprentice may be supplemented by technical training.

(1) Evening classes in large centres.
(2) Part time classes in large centres.
(3) Short courses.
(4) Correspondence courses.
(5) One or two years technical or vocational school work either preceding or during apprenticeship period."

"The work at the Provincial Institute is as practical as is possible to make it at the present time."

"No work is performed as an exercise only; all operations being part of some repair work on a machine, car, motor, etc., brought in for overhaul."

"Work at present is being carried on

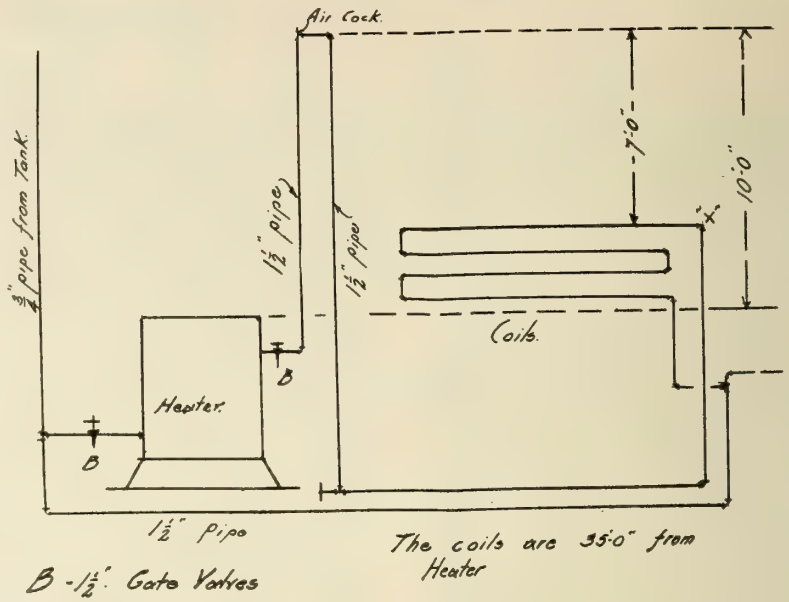
(Continued on page 19)

Questions and Answers Regarding Plumbing and Heating Practice

HEATING OF GARAGE

Question.—Enclosed is rough sketch of heating for garage. When job was first installed it heated satisfactorily but we experience trouble now in starting the system. When the furnace is started steam forms in the loop so fast that five minutes elapses before water passes the loop, consequently it retards heating of coils. Do you consider the loop high enough?

Posner Bros., Montreal.



Answer.—Upon examining your sketch we are led to believe that much of the trouble with respect to circulation is due to possible air-pockets in the piping system.

First:—It would be better to take the 1½ inch feed pipes out of the top of the heater, instead of from the side as shown. When the feed pipe is taken from the side—as indicated by your drawing—an air-pocket is left in the top of the heater.

Second:—If it is possible to do so, the loop should be carried higher than shown and vented by an automatic air vent, or vented above the supply tank.

Third:—An air vent should be placed at the point marked X on the drawing, and also at such other points where pipes start in a downward grade.

With such a lay-out as this will the heater work or not?

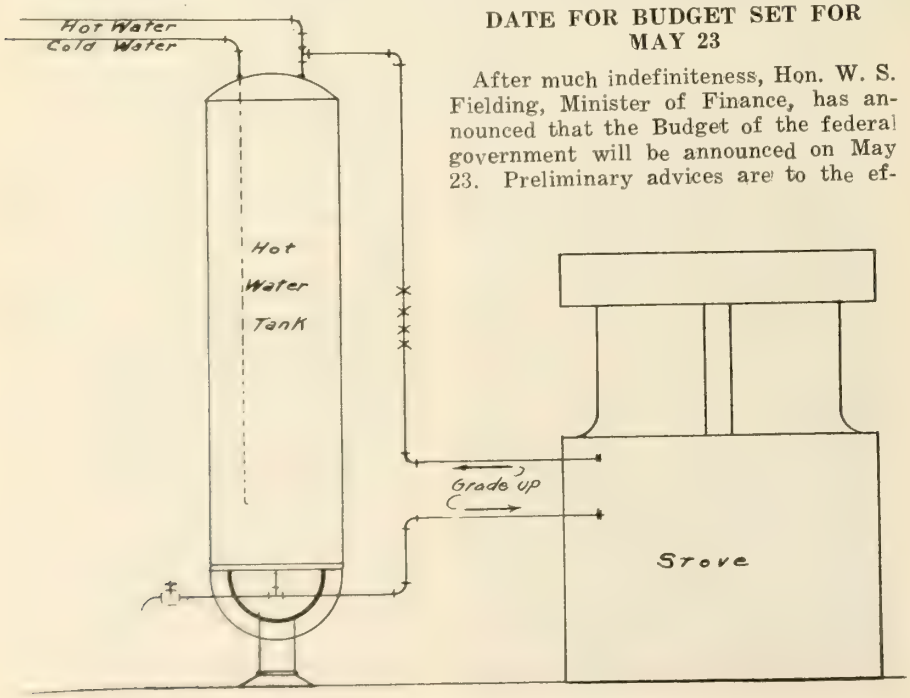
Answer:—There is no apparent reason why such a system as this will fail to work properly.

The arrangement of the piping is good and, in our opinion, is about as efficient as any that could be devised.

You will note that we have made a note of "grade up" at the water-back connections. We have done this because it is in poorly graded connections here that much of circulation troubles arises.

ELECTRIC HEATER

Question:—With a fire in stove below when electric heater is placed what will be the result?



DATE FOR BUDGET SET FOR MAY 23

After much indefiniteness, Hon. W. S. Fielding, Minister of Finance, has announced that the Budget of the federal government will be announced on May 23. Preliminary advices are to the effect that considerable change may be made in taxation and the tariff. These changes will be outlined fully in the next issue of Sanitary Engineer from the standpoint of the sanitary and heating trade and as many pumbers suffered much hardship and in some cases prosecution last year for not following out the instructions in detail, it will pay to study the matter fully as outlined in the next issue of Sanitary Engineer.

FOUNDER OF NATIONAL CASH REGISTER CO. DIES

John H. Patterson, founder and chairman of the board of directors of the National Cash Register Company, Dayton, Ohio, died suddenly aboard a train bound for Atlantic City, N. J.

John H. Patterson, organizer and founder of the National Cash Register Company, and ever since its establishment in 1884, its president and manager, was in his 78th year.

His lifelong interest in his home community and particularly his spectacular efforts in behalf of his neighbors during the awful Dayton flood of 10 years ago, brought additional fame to that which he won as a world-known business man.

H. Mathieu and Co. plumbers, Sherbrooke, Que., has dissolved.

Mr. N. G. McDonald, late town engineer of Oshawa, has accepted a position with Messrs. Gore, Nasmith and Gorrie, Toronto, and will take up his new duties at once.

Patterns for Forge Hood

By O. W. KOTHE, Principal, St. Louis Technical Institute, St. Louis, Missouri

RESPONDING to inquiry for a forge hood according to sketch; the enclosed layout will give the proper solution.

The first step is to design the elevation giving it the height from base to collar a, and then to set in the hood line a-b to the angle desired for giving the proper projection.

Next sketch in the curve b-c-e-f-6″. This is largely done at pleasure, or what you feel the curvature should be.

After this, describe the section A and divide in equal parts and drop lines to the collar line a.

Then describe the section B, to a radius to suit the radius at the back of the forge. In this case, we use center x, but in practice we establish this form from what the forge would measure to.

By continuing the hood line a-b to the base line as in point 14, we first consider this problem as a transition piece.

Now, since the majority of the base is cut away, we can use the same radius and set it in 14-y, and describe that quarter circle.

Observe this insures the hood having a full opening, and this method saves developing a plan and much other geometrical construction which will not give any better results.

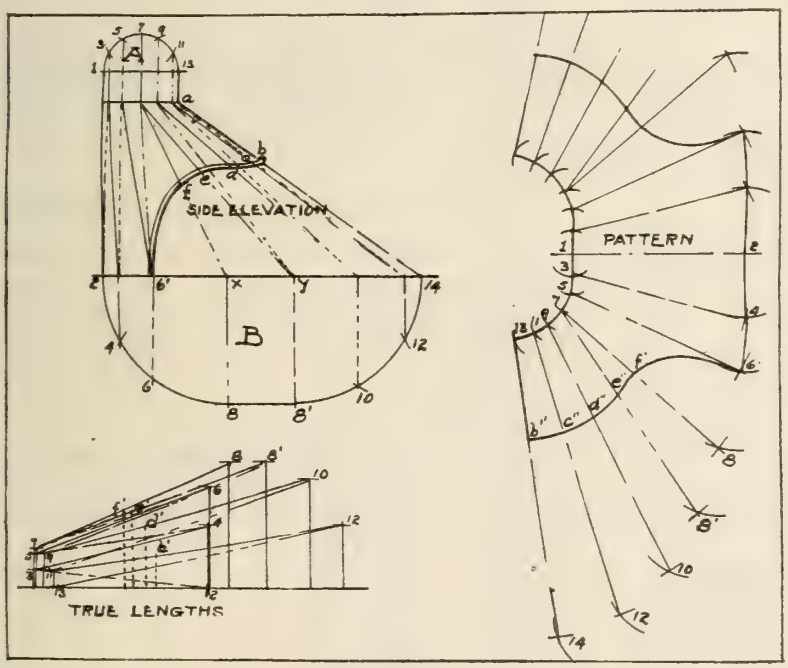
After section B is established and the points are set in, and lines are drawn in the triangular fashion in elevation, we are ready to develop the true lengths.

This is done by drawing a base line, and picking the elevation lines and setting them horizontally on this line always working from one point to another. Then at their ends we erect sectional lines equal to those in A-B. This enables drawing the slant lines in diagram and gives us the true lengths. The pattern for the entire transom piece can then be laid out using the girth spaces from A and B as numbered points show. This pattern is developed the same as any taper joint off center, or oblong to round off center.

Then when the outlines 1-2; 13-14 are established the connecting lines are drawn as shown. Now to cut in the curved shape for the hood you can pick these elevation lines as a-b from elevator and set them as 13-b″ in pattern. Next pick lines 12-c, 10-d, 8′-e; 8-f from elevation and set them on the horizontal line in diagram using base points 12-10-8′ and 8, which enables drawing the dotted lines as shown. Observe these dotted lines cut off the full lines 11-12; 9-10; 7-8′; 7-8 as in points c″-d″-e″-f″. Next the distances as 11-c″+9-d″; 7-e″; 7-f″ and set the min pattern as 11-c″; 9-d″; 7-e″; 7-f″.

This gives these points in pattern where the lower transition is to be cut away.

After this the curve is sketched in as shown. When the workman has made several of these hoods he can easily pick a-b from elevation and set in patterns as b″ and then sketch in free handed the remaining curve to point 6. Any curve would be suitable just as both sides are uniform. Edges for riveting and wiring must be allowed extra.



Patterns for Forge Hood.

ALBERTA ASSOCIATION WITHDRAWS

(Continued from page 15)

An address was given by G. Hughes, president of the western section of building construction which brought forth the following questions and answers:

Question: Re unemployment, has your association gone into the matter of housing scheme? Replied no.

Question: Will the uniform contract as being compiled by your association be applicable to sub-contractors? Replied he did not think so.

Question: Re organizations joining Western Building Industries; Can they or not.

PROGRESS OF TECHNICAL EDUCATION IN ALBERTA

(Continued from page 17)

in full day, part time, evening and correspondence courses by the institute."

"The members of the staff are all practical men."

"So with the Institute it will be as much service to you as you wish. If you take an interest in it and assist the work it in turn will aid you in turning out a more intelligent and better trained workman for the various industries of this province."

Question was asked Mr. Ross as to what full time and part time classes meant. Replied full time course is 8 months; part time instruction 2 or 3 days per week. Evening classes means after business hours at night.

Question: To what extent the government would assist school boards having technical school classes. Replied; in cities throughout the province, for instance Edmonton, government pays 40 to 60 per cent. or a maximum of $1,500 to any school board having evening classes; this amount with an equal amount from the school board brings the total up to $3,000.

Question: If the Department of Education would co-operate with us in having evening classes formed in the Technical school at Edmonton with suitable classes for the plumbing and heating trade. Replied; Yes, if a request were made to the Department of Education, they would recommend to any school board where a technical school existed that such classes be formed.

The patents and good-will of the "Jack Frost" Electric Refrigerating onto Laundry Machine Company, of business formerly carried on by the Torwhich the late John O'Neil was president, have been purchased by the "Jack Frost" Ice Machine Company, Limited, Toronto, with an authorized capital of $1,000,000.

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May Stop An Old Plumbing Evil

MUCH OF THE disfavor which has been brought upon the sanitary and heating engineers by certain classes of people has been the direct result of the work of certain irresponsible operators who have been allowed to enter business under the name of plumbers or heating engineers because of the lax regulations and small license fee required. For a long time the disfavor and even ignominy which this class have brought upon the industry as a whole has been a sore spot to those who are endeavoring to raise the standards of this line of business. Attempts have been made to have more rigid by-laws passed in order that the usually inefficient work of such operators would bring them to light, but unfortunately plumbing regulations in many places are still inadequate and these men are allowed to ply their trade. This class of operator has been a distinct obstacle in the way of endeavors to set up high ideals and endeavors to educate to the real value of this work.

In this connection it is interesting to note the action which has been taken by the Montreal Master Plumbers' Association, as outlined elsewhere in this issue. This association has asked the city officials to raise the license fee from $5.00 to $200.00 with the hope that this would prove a sufficient obstacle to keep undesirable men from entering business. It would at least keep the "shoestring" variety out of it for it is likely many of those would have trouble raising the necessary sum for a license.

That the situation has become acute has been indicated by reports made at recent conventions which have shown that due to the scarcity of employment many journeymen and helpers are entering business on their own account. To such an extent has this been the case that any endeavors at trade extension work have been abolished in Canada until this situation is righted, it being realized that a preponderance of such operators who are little interested in raising the status of the industry would have little interest in such efforts.

The Montreal Master Plumbers in making this recommendation make it clear that the mission is one of protection for the public from incompetent men undertaking the installation of plumbing work which due to lax plumbing by-laws might be passed and yet be a real menace to public health. Many operators employed by master plumbers have passed the required examinations and secured licenses and undertake work after regular hours while still acting as employes. Such work is done in a rush and at cheap rates. Such practice places the employers in a very bad light and is not giving a fair deal to the one for whom the work is being done. It is time such practice was stopped and it will be interesting to see the result of this action.

A Startling Statement

FOR YEARS rural life has been looked upon as healthier than city life. With an abundance of fresh air, fresh food, quietness and plenty of outdoor activity it certainly should far exceed the average city life from the standpoint of encouraging health. But the facts show that those in the cities and larger towns are more healthy than those in the rural districts and the big reason lies at the door of advanced sanitary methods on the one hand compared with backward sanitary conditions on the other.

A Western Red Cross nurse has created somewhat of a sensation by declaring that country life is far from as healthy as is usually supposed. She points out that a large percentage of children and adults on farms have some physical defects. An inspection of 3,632 persons showed 2,317 to have physical defects, a large number underweight. The nurse in a review says:

"Too little attention is paid by the average farmer to the surroundings of the house, the disposition of sewage, the location of the well. Refuse is kept too near the house, bathtubs are coming in but are too scarce. Every farmer these days can have a modern bathroom and running water in the house but still thousands of wives carry the water from an outside well."

Every day various authorities are drawing attention to the great need for improved sanitary conditions on the farm and various organizations are at work to improve these conditions. What higher or more lofty ideal could form the basis of any business than the plumber has at his command in pushing the sale of sanitary farm equipment. Such a foundation of truth and necessity should inspire any man to big accomplishments. There is no reason why the farmer's wife should not have as comfortable a house as her sister in the city. She has been an influence in having the farmer buy automobiles, farm labor saving equipment for the workmen, and she should be cultivated to help in the buying of sanitary equipment for the farm home and other buildings.

* * * *

Heavy Burden on all Industries

EARLY indications from Ottawa are to the effect tnat by July there will be considerable reduction in freight rates, notably in Western Canada where a return to the Crow's Nest Pass agreement is expected. This agreement gave a neavy subsidy to the C. P. R. on condition that that line grant reductions in rates if the government helped largely in building a line through the Crow's Nest Pass. During the war this was held off and if parliament does not renew it rates will decline considerably it is said. This would affect plumbing and heating supplies, agricultural implements, etc.

This possible action brings up the whole question of freight rates and it is possible that some progress will be made before long in the revision of rates so as to encourage trade as much as possible. Just how this will be done with the railways already a heavy financial burden on the country is not now evident but the governmental body which is making a study of the railway situation may before long make some concrete recommendations. Certainly some steps are needed to help lift the burden of the agricultural industry of Western Canada due to heavy transportation costs. British Columbia wants freight rates on the mountain section that will make it possible for that province to compete with the eastern provinces in the supplying of the needs of the prairie provinces.

Sewage Disposal for Small Communities

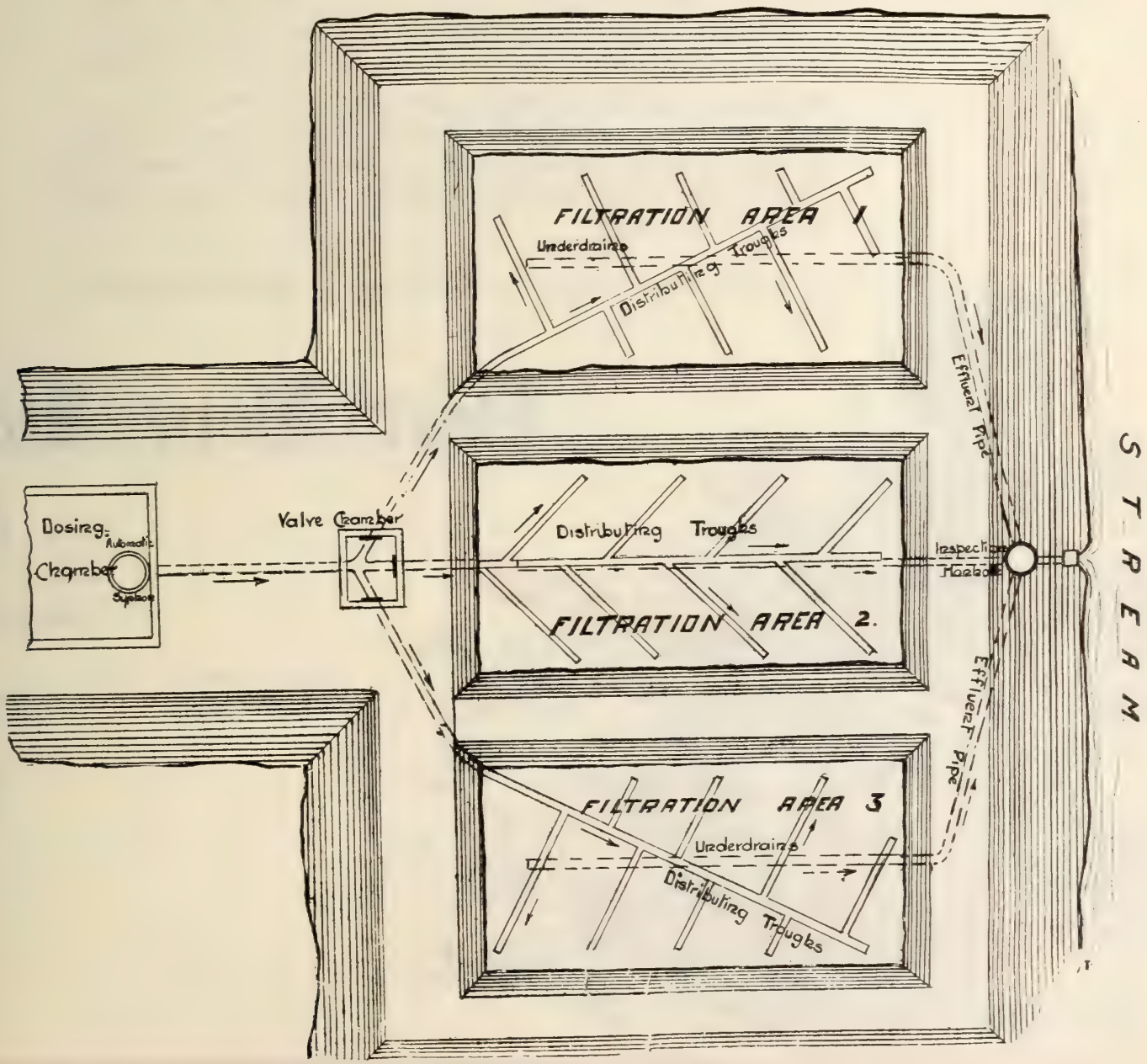
A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights —Keep the Entire Series Where It May Be Referred To And Studied

(Continued from last issue)

IN CALCULATING the size of artificial filtration beds it is the general practice to provide for 45 square feet for each person, or one cubic yard of filtrating material for every 50 gallons of sewage.

In this class of contact bed provision must always be made for resting the filter from time to time as no contact filter can work continuously and produce good results without this rest, so that the filtration area should always be divided into 3 to 5 beds. Filter beds can be constructed cheaply out of the ground by sloping back the excavated sides. The filter bottom must be of some impervious hard soil and the underdrains laid as shown on Figs. 69 and 70. (see last issue). Fig 71 illustrates another way of arranging the contact beds for secondary filtration and the same principles already described apply in this case. The plan shows another system of distribution and a very simple and effective way of underdraining the beds.

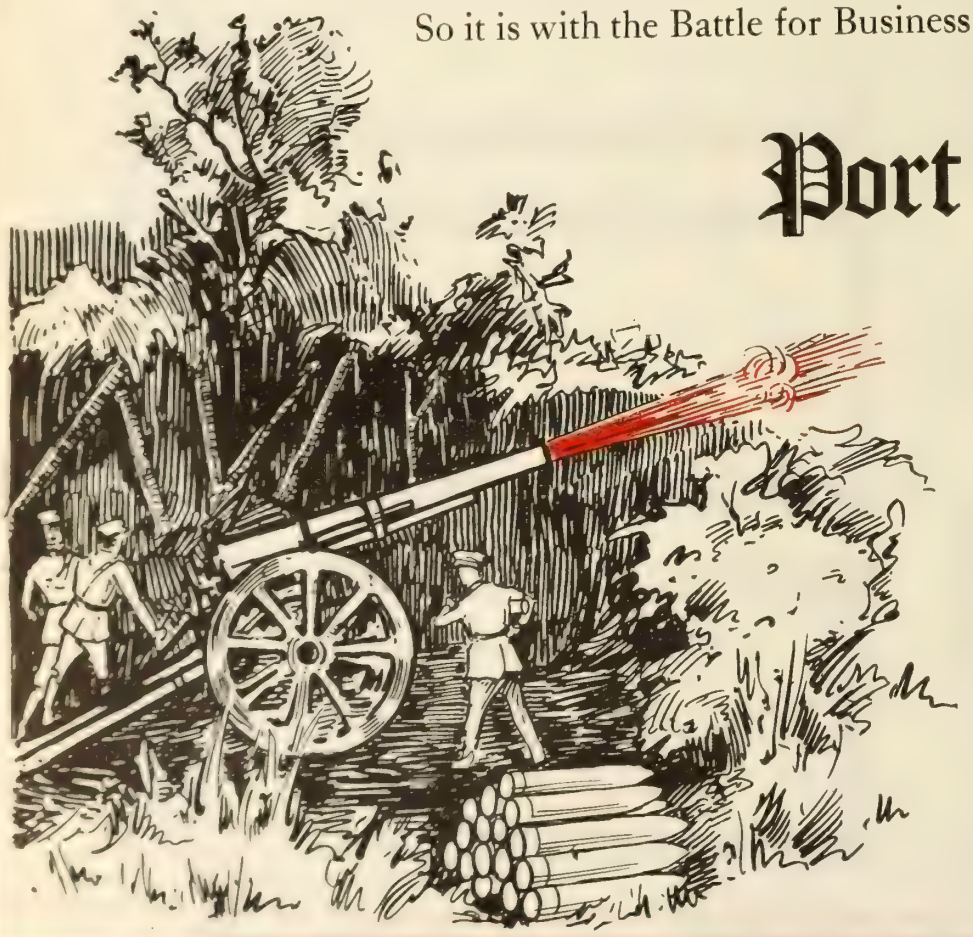
(Fig. 71)



IN FR

THE ATTACK was on. First the artillery bombarded the enemy trenches with "messages" of all sorts and sizes. This went on for days until it was thought that the resistance of the enemy had been worn down to the lowest point, and all arguments in the shape of barbed wire entanglements, "pill boxes," trench parapets, etc., had been disposed of. Then came the personal visit when the infantry charged. The resistance this personal visit met with depended on the preliminary bombardment. If it had been vigorous and effective the attack was usually successful and the objective gained with the least possible loss of time. If, on the other hand, the preliminary work was insufficient, precious hours and lives were wasted.

So it is with the Battle for Business. If the Sanitary En-



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gineer is going to stage an attack for increased business his preliminary attack must consist of an intelligent and well planned bombardment of his prospects with catalogs, booklets, circulars, blotters, etc., if his personal visit is to be carried out with the least loss of time and with the best results.

We can supply you with all the advertising ammunition you care to use.

Use it to batter down your prospects' prejudices and arguments against the installation of up to date plumbing fixtures—then—armed with confidence, a smile and a knowledge of your business, administer that "finishing touch" by a personal visit.

We're banking on you to win.

y Mfg., Company
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G., TORONTO

RIO

BLDG.

Winnipeg Office:
405 TRIBUNE BLDG.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

BUSINESS CHANGES

Montreal.—Whyte & Delaney, plumbers, have dissolved partnership.

John P. McTomney, plumbing and heating, Halifax, N. S., has sold out.

Newcastle N. B.—Daniel Donovan has taken over new premises and is installing complete stock of plumbing and electrical supplies.

NEW FIRMS

O. L. Dubeau has commenced business with a first class shop at Penetang, Ont.

Peterboro, Ont.—Wallace and Smith have opened a new plumbing and steam fitting shop at 372 Water St.

OBITUARY

George Carbeck, tinsmith and plumber of Dunnville, Ont., is dead.

FT. WILLIAM PLUMBERS SIGN AGREEMENT

The Master Plumbers of Fort William have signed a wage agreement effective May 1, with the journeymen plumbers. The rate has been set at ninety cents for an eight hour day.

PLUMBERS' BALL LEAGUE

The Toronto Plumbing and Heating Supplies baseball league are scheduled to commence the season's activities on Monday, May 15th. Last season the league was composed of teams representing the Dominion Radiator Co., James Morrison Brass Mfg., Co., the Grinnell Co., of Canada, Ltd., and the Domestic Sanitary and Heating Engineers. This year the Standard Sanitary Co., have entered a team in the league. Walter Boddington, of the James Morrison Co., is the new president of the organization. The schedule of games appeared in a recent issue.

WESTERN ONTARIO NEWS

William Lamarsh has opened a plumbing and tinsmithing shop at Cottam, Ont.

W. E. Watson, 8 St. George St., London, wants prices for hot air heating, plumbing and electrical work for new $6,500 residence.

Bull Bros., 363 Hamilton Road, London, have been awarded plumbing and heating contracts for new $4500 residence for A. Macniven.

Thos. Carter, 506 Piccadilly St., London, wants prices on hot air heating, plumbing and electrical work for new $5000 bungalow.

Archetict L. G. Bridgeman, Bank of Commerce, London, is calling for tenders for $10,000 bungalow for I. Taylor. Hot water heating, plumbing and electrical work.

In connection with waterworks improvement costing $42,000 at Petrolea, Ont. contract for new steel tank has been awarded to Horton Steel Co. of Bridgeburg. Work to proceed as soon as possible.

Plans are being prepared and tenders will be called shortly for new church for Baptist Congregation at Leamington, Ont. W. G. Murray, Dominion Savings Building, London, architect. Estimated cost $40,000. Prices wanted on hot air heating, plumbing and electrical work.

OTTAWA PLUMBERS' DISPUTE AMICABLY SETTLED

Ottawa.—An amicable settlement of what for the past two or three weeks bore the earmarks of a strike situation developing between the members of Local No. 71, Plumbers and Steamfitters' Union and the Master Plumbers' Association, was announced following a conference by representatives of both sides.

The conference which was private was held at the office of McKinley-Northwood, Rideau street, and was attended by representatives of the union headed by Charles Fever, and on behalf of the employers by J. F. McKinley.

Some weeks ago it was authoritatively stated that the Master Plumbers had offered a wage cut amounting to five cents per hour to the employees. This the employees rejected and negotiations for a time were broken off. Last year the members of the union received eighty cents an hour and this year the offer of 75 cents per hour has been made.

TENDERS FOR WATERWORKS SUPPLIES

Quebec.—At a meeting of the civic waterworks committee tenders were considered for the supplies required by the Department for the year. Practically the entire meeting was taken up by the consideration of the tenders. It was remarked that the prices quoted showed an average reduction of about 30 per cent. It is estimated that the total cost of the supplies will be in the vicinity of $50,000.

The contract for valves was awarded to Drummound, McCall & Co. at $9.85 $16.85 and $28.00; Cast Iron Pipes, to the Canada Iron & Foundry, 4-inch, $54.50, 6, 8 and 12-inch, $50.00; picks and shovels to the Martineau Company; lead pipes, to Mechanics Supply Co.; pig lead, to the firm of Crane Ltd.; clay pipes, to the Standard Clay Products; cast iron to Terreau & Racine.

TORONTO'S BUILDING PERMITS

All previous records for building permits issued by the Toronto City Architect's department, for any similar Spring period are reported surpassed during the last three months. The total value of buildings for which permits were issued during the month of April was over three and a half million dollars. This amount for April was only surpassed one other April in the city's history, that occasion being in 1914. In this connection it is pointed out that lack of commercial construction work will probably prevent the present year from establishing fresh records as regards the total value of building permits.

FOUNDER OF NATIONAL CASH REGISTER CO. DIES.

John H. Patterson, founder and chairman of the board of directors of the National Cash Register Company, Dayton, Ohio, died suddenly aboard a train bound for Atlantic City. N. J.

John H. Patterson, organizer and founder of the National Cash Register Company, and ever since its establishment in 1884, its president and manager, was in his 78th year.

His lifelong interest in his home community and particularly his spectacular efforts in behalf of his neighbors during the awful Dayton flood of 10 years ago, brought additional fame to that which he won as a world-known business man.

EDMONTON PLUMBERS ON STRIKE

Edmonton, Alta.—Union plumbers are out on strike, or what the men themselves prefer to term a "lock-out."

On the part of the master plumbers, there appears to be every indication that a firm attitude will be maintained.

It is stated that about twenty-five shops are affected by the present suspension of work. This would involve around sixty employees.

Negotiations between the master plumbers and the union have been going on for some months, but no agreement arrived at. The union has been asking that the scale of $1 per hour be continued, while the employers have held out for no more than 90 cents, which they claim is an increase on their original offer.

President Kelcher says that 90 cents an hour is paid in Winnipeg, in all the Saskatchewan cities and in Vancouver.

As the old agreement in Calgary does not expire until June 1, that city's new scale will not be known for some time.

Death of James Robertson

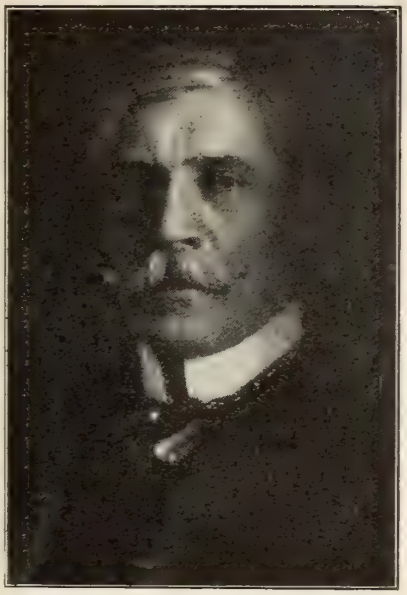
President of Thomas Robertson & Co., Montreal, Passes Away in Montreal

THE DEATH occurred in Montreal of James M. Robertson, president of Thomas Robertson & Co. He was actively engaged as the head of his firm until November last, when his health failed him, necessitating his confinement to his home on Dorchester St., from which he had never been able to leave until his death. Mr. Robertson was one of Montreal's most widely-known business men, and while of a conservative disposition, commanded the highest respect from his business associates both in the firm and outside through his exact methods in business dealings.

Mr. Robertson was born in Glasgow in 1855 and came to Canada with his parents in his early years. In 1871 he entered the firm established by his father, Thomas Robertson, and last year celebrated the 50th anniversary of this connection. Although starting as an office assistant, his ability was soon to be seen and after spending a few years as a salesman on the road, he was appointed managing director. Later he was elected vice-president under the presidency of the late James Reid Wilson. At the death of Mr. Wilson, eight years ago, Mr. Robertson assumed the presidency, the position he held at the time of his death.

When a young man he was actively interested in athletics, particularly in bicycling and snowshoeing, and in later years, golf. He was a member of the St. James, Beaconsfield Golf and Engineers' Club, also a member of the Montreal Board of Trade.

He is survived by five daughters and two sons, Mrs. Angus MacKay of Vancouver; Mrs. Thomas Caverhill, Mrs. Carleton Monk, Miss Kate and Miss Sybil Robertson, and Hilary Robertson all of Montreal, and Thomas Robertson of Ottawa. The funeral took place from his late residence on Dorchester St., West, to Mount Royal Cemetery on Wednesday, May 3rd.



LATE JAMES ROBERTSON

President of Thomas Robertson and Co., Montreal, whose death is announced.

FREDERICTON PLUMBERS ON STRIKE

Fredericton, N. B.—May Day brought its strike to Fredericton, the journeymen plumbers going on strike as a result of a dispute with their employers over wages. A new schedule of wages for all branches of the building trades went into effect under an agreement reached by the Building Contractors' Association of Fredericton and district, and the plumbers were the only journeymen who failed to turn up for work as a result.

Plumbers' wages have been 70 cents an hour and the employers set new figures effective on and after May 1st at 60 cents an hour; it is said that the journeymen had offered to work for 65 cents but the employers are under agreement not to make any compromise and declare there will be plenty of men available at 60 cents an hour.

One of the employers, who was busily engaged in completing a job his men had left unfinished, said that two years ago the rate of wages for journeymen was raised 40 per cent.—from 50 to 70 cents an hour; last year it was proposed to make a reduction but no change was made and this year the proposed reduction was just half of the raise that had been granted.

Tinsmiths, he pointed out, had come under the same rate of wages as the plumbers, which was unusual as tinsmiths are not usually paid as much as steamfitters, etc. but all were members of the Journeymen Plumbers' local union and all had quit work. Employers said that an agreement had also been reached to give the customers the benefit of the reduction and that the charges on jobbing would be reduced from $1 to 90 cents with the hope of making it 85 cents in the immediate future.

WATER SYSTEMS ON BOWLING GREENS ARE DESIRABLE

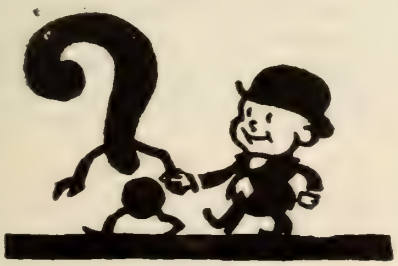
At the semi-annual meeting of the Rusholme Lawn Bowling Club, Toronto, special attention was called to the new overhead irrigation system that was installed on the green last Fall. The members saw the system in operation during the early evening and were unanimous in declaring that it represented the most valuable improvement that had ever been added to the club property. They are anticipating a wonderful green this season, as a result of the new system.

ERECT COMFORT STATION

Kitchener.—Work will be started by the city shortly on the comfort station and waiting room planned for in front of the new city hall. The sum of $800 has been provided in the estimates. It is expected the station will be completed before the end of the year.

John Tweddle of John Tweddle and Co., plumbers, Montreal, is dead.

Do You Know all the Possibilities for Business In Your District?



If you think you do you will be interested in the SALES STIMULATION NUMBER of SANITARY ENGINEER of June 1 for the purposes of checking up your ideas with those outlined in this issue. At any rate you will find a wealth of splendid ideas in this issue which you can apply in your business with stimulating result. It will be one of the biggest and best issues of Sanitary Engineer ever issued. Watch for it!

Hot Controversy Over Plumbing By-Law

Member of Local No. 71, United Association of Plumbers, Points Out That Changes in Suggested By-Law Will Protect Public Health at Less Cost —Alderman Makes Reply

OTTAWA.—A statement in reply to comments made on the city plumbing regulations by Ald. Nolan is made by Robert Mackie, a member of the United Association of Plumbers, local No. 71. He says that if Ald. Nolan will assist in calling a public meeting, he will arrange to have the best mechanics in the city present to discuss the plumbing regulations in the interests of a clean, healthy city.

"Members of local No. 71," says Mr. Mackie, "have no axe to grind in this matter. They want the health department free entirely from all kinds of red tape. This local has at all times been willing to co-operate with the health department and has formed committees repeatedly to go into this matter with a view to making the Capital a better and cleaner place to live in.

"Ald. Nolan states that the present by-law is ample to safeguard sanitation. Does he not know the effect condensation and gases have on black iron pipe, causing the air outlets to become blocked with sediment and rust? After a very short time it will cause the traps to break their seals allowing the poisonous sewer gases to enter the rooms where human beings have to spend a large part of their time.

No Increase in Cost

"The proposed change to galvanized iron pipe for venting will give the public the assurance of a proper sanitary system with little danger in the way of outlets becoming blocked. Ald. Nolan states that the proposed change would increase plumbing costs 50 per cent. This is all nonsense, and I challenge the alderman to prove it. All the best of our public buildings have galvanized iron pipe for back venting, and in a public school now being erected the plumber saved 18 fittings in one instance alone by loop venting instead of individual venting, ample proof, I am sure, of the general saving that will take place under the proposed changes."

Mr. Mackie says that he is a mechanic of 25 years' experience, and is merely endeavouring to assist the public to become familiar with the real state of affairs in regard to plumbing matters.

Replies to Plumbers' Union

Alderman P. J. Nolan, who is strongly opposing the plumbing by-law has replied to the letter of R. Mackie, of Plumbers' Union No. 71, which objected to the alderman's contention that plumbing costs will be increased approximately 50 per cent. by the passing of the by-law. Alderman Nolan draws attention to the fact that Mr. Mackie does not pretend to deny that recessed fittings will increase those costs by 400 per cent., nor does he deny that galvanized pipe will be more expensive than black iron. Alderman Nolan also states that the present plumbing by-law consists of 17 sections which increased the plumbing costs 33 per cent. while the new by-law consists of 120 sections. He says that he would like some of these plumbing experts to figure out this problem in arithmetic. If 17 sections increase the cost of plumbing 22 per cent. how much will 120 sections increase it?

Lower Wages for Montreal Plumbers

Agreement Reached Between Master Plumbers and Local Catholic Syndicate—Journeymen's Wages Five Cents Per Hour Lower Than Last Year

MONTREAL.—An agreement has been reached between the Master Plumbers' Association of Montreal and the Catholic Syndicate whereby wages for the coming year are lowered five cents per hour or approximately six and two-thirds per cent. This matter has been under discussion by both parties for some weeks past, and it is encouraging to note that the agreement reached is satisfactory to employer and employee.

Journeymen's wages last year were 75, 70 and 60 cents an hour, according to degree of skill. Under the new agreement they will be 70, 65 and 60 cents.

There is no closed shop provision. In place of this the "preferential shops" under which preference will be given to members of the union were available. Time and a half will be paid up to midnight and on Saturday afternoons, and double time for Sundays and certain specified holidays.

The rates offered by the master plumbers in the negotiations leading up to this agreement were 65 and 60 cents, so that the men feel justified in claiming a measure of success in their negotiations. The agreement further provides for the appointment of a joint board representing the union and the Masters' Association to deal with any disputes that may arise.

This is the first agreement to be signed governing working conditions and wages in the building trades locally this year.

LETTERS TO THE EDITOR

The following letter to the Editor of the Ottawa Citizen gives some interesting details regarding the Ottawa Plumbing By-Law.

Editor, Citizen: Having read the correspondence re new plumbing by-laws, and being a plumber of some 25 years' experience, if the following will help any, please publish it.

I learnt my trade in London, England, in the old way as an indentured apprentice. Throughout that city it is not allowable to use anything but lead soil and back vent pipes inside a building and when you consider the cost of lead as compared with either black, galvanized, or cast iron pipe, surely we in Ottawa should not kick at the cost, if our leading sanitary engineers and inspectors advise the use of galvanized iron. What is the use of having a lovely bath room, with spotless white fixtures, nickel taps and supply pipes, if the hidden work is not sanitary?

As a plumber (or as defined in the dictionary, a worker of lead), I maintain there is nothing to beat lead, and as lead work is considered the most skilful part of a plumber's trade, the plumbers of this city certainly cannot have an axe to grind when they advocate galvanized iron pipe and continuous venting, which system naturally does away with considerable lead work and joint wiping. I would advise Ald. Nolan not to look at the initial cost, but on the durability of the job, and granting galvanized iron and recess fittings may cost 50 per cent. more if the work lasts only twice as long it is certainly money saved. I am not advocating all lead pipe work, as I realize the cost here is very high, but personally I have taken out lead work over one hundred years old and found it as good as when installed. Yours for a more sanitary city.

FRANK LEE.

Ottawa.

HEALTHOMETER BATHROOM SCALE.

D. A. Sands, Yorkton, Sask.—Would you kindly give me the address of the Canadian agency for the manufacturers of the Healthometer bathroom scale.

Answer:—This scale is manufactured by the Continental Scale Works, Chicago, Ill. The distributing agents in Western Canada are the Chandler & Fisher Co., and the B. C. Stevens Co., both in Vancouver.

Messrs. Marsh & Scott, Medicine Hat, Alta.—Kindly advise where we can secure gas cocks.

Answer—Canadian Brass Co., Galt, Ont., Wallaceburg Brass & Iron Mfg. Co., Wallaceburg, Ont.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

THE MARKETS AT A GLANCE

CURRENT changes in sanitary and heating markets are of a varied nature, both advances and recessions in price being recorded. Easier quotations are noted on asbestos products, such as pipe covering and sheathing, while plumbers' oakum and Desolvo pipe cleanser have also been lowered in price. The additional discounts now being quoted in many quarters on radiators and boilers attract specific attention to these markets, keen competition in these products having resulted in some unsettlement. Distributors state, however, that this is a temporary condition, with future confidence tending towards a further steadier revision. An advance has been registered in quotations on hoop steel and a similar change appears on practically all bar iron and steel items. Sheet products are also increased in price, this change applying to domestic and also English grades of galvanized sheets. Higher price levels have also been recorded on certain lines of scrap materials, including brass scrap, light and heavy copper, and heavy melting steel. Eastern centres record revised lists on boiler tubes and closet outfits and fixtures, the previous quotations on both these lines having been more or less nominal. The issuing of new quotations is expected to steady the general situation and restore confidence in the trade. A tentative announcement has been made to the effect that malleable fittings will most probably be quoted under a new list. The revised quotations in this connection are stated to be approximately four times the prevailing net prices, with a proportionate discount level of seventy and five per cent. Compression goods generally remain at the recently revised discounts, with brass steam cocks now being quoted at fifty off for sizes ½ to 2 inches, and forty-seven off for 2½ to 3 inches. The ingot metal trend has been slightly upward on lead and spelter, but these movements do not appear to have a permanent basis. However, more interest has resulted in a slight improvement in copper and antimony, with tin and aluminum again weaker. Brisker trade is noted in enameled ware, while a firmer trend is recorded in corrugated markets. Seasonal activity is evident in soil pipe and fittings, eavestrough, and conductor pipe.

MONTREAL MARKETS

MONTREAL, May 13.—Numerous price developments feature the markets in plumbing and steam-fitting supplies. Revisions, both upward and downward, are announced on important lines, and one of the chief changes is a revision in prices on various closet combinations. Practically all outfits show a price decline of varying extent, with lower prices also on tanks, bowls and closet seats. Another marked change is the advance in quotations on bar iron and steel. All lines, with the exception of band steel, are increased twenty-five cents per hundred pounds, the latter showing a further advance of thirty-five cents through a change in the differential. Queen's Head and Fleur-de-lis brands of English galvanized sheets are also twenty-five cents per hundred pounds higher on all gauges. Some unsettlement is recorded in radiators and boilers, additional discounts being quoted in various quarters. A firmer tone has also developed in the scrap markets, brass and copper scrap being increased in price, also zinc and heavy melting steel. Asbestos products now show an easier tendency, and sheathing, pipe and boiler coverings are quoted lower. Plumber's oakum is reduced fifty cents per hundred pounds, and boiler tubes have a new lower list of prices. A further revision is given on brass steam cocks, while Desolvo pipe cleaner is two dollars per case lower in price.

PLUMBERS' OAKUM IS REDUCED IN PRICE

Montreal.

A reduction of 50 cents per 100 lbs. has been made in plumbers' oakum, and this is now quoted at $6.50, or $3.25 per 50 pound bale.

REVISED QUOTATIONS ON CLOSET COMBINATIONS

Montreal.

Revised quotations are now announced on the various closet combinations, the easier list quotations appearing on practically all outfits. The standard low down outfit is now quoted at $25.00, a reduction of $2.50 from the nominal list. Other goods, such as tanks, bowls and seats are reduced in some instances. For some time past competition on these goods has been very keen, and only nominal quotations could be given as price concessions were offered by distributors for attractive orders. It is now felt that the present revision will assist to quite an extent this unsettlement. Following are revised quotations:

CLOSET COMBINATIONS—	each
Closet, standard low down outfit	$25 00
Do., post hinge seat	26 00
Do., oak vitro, back strip seat	27 75
Do., oak vitro, post hinge seat	28 40
Do., china tank and back strip seat	28 50
Do., china tank post hinge seat	29 50
Do., vitro white with post hinge seat	30 75
Reversible trap bowl, less spud	11 25
Wash down bowl, less spud	10 00
Rickelieu bowl	9 00
Siphon jet bowl	16 25
Extra for spud	0 60
Add for ⅜ in. valve on supply pipe	1 25
Add for bar hinge	No extra
Deduct for supply pipe	0 80
Deduct for floor hinge	0 60
Wood strip seat and cover	3 05
Post hinge seat and cover	4 25
Oak or oak vitro tank, with fittings, less seat	14 25
White vitro, vitreous china or enameled iron tank, with fittings, flush elbow and supplies, less seat	18 50

DESOLVO PIPE CLEANER REDUCED IN PRICE

Montreal.

A reduction is made in the price of Desolvo pipe cleaner, present quotations

being $10.00 per case of two dozen. Former quotation was $12.00 per case.

INCREASED PRICES ON ENGLISH GALVANIZED

Montreal.

Local sheet markets are now featured by advanced quotations on both Queen's Head and Fleur-de-lis brands of English galvanized sheets. All gauges show an increase of twenty-five cents per 100 lbs. With delayed deliveries from mills on this side, an active demand has developed for imported sheets, and shipments find a ready market immediately upon arrival. Local importers are in receipt this week of a call from other western markets to forward large tonnages, and with a continuation of this activity, fear of a shortage in the near future is expressed. Slightly higher quotations on other brands of galvanized, and black sheets, are appearing in different quarters, and it is felt that with the firmer tendency continuing in the market, a general revision will be announced on these in the near future. Prevailing price levels are as follows :

BLACK SHEETS—

10 gauge	4 00	4 50
12 gauge	4 10	4 60
14 gauge	4 40	4 70
16 gauge	4 50	4 80
18-20 gauge	4 55	5 05
26-gauge	4 60	5 20
22-24 gauge	4 65	5 25
28 gauge	4 75	5 35

GALVANIZED SHEETS—

10¾ ounce	6 65	7 10
28 gauge	6 25	6 70
26 gauge	5 95	6 35
22-24 gauge	5 80	6 10
20 gauge	5 65	5 95
18 gauge	5 65	5 85
16 gauge	5 50	5 80
14 gauge	5 35	5 75
12 gauge	5 20	5 75
10 gauge	5 10	5 75

English Standard—	Queen's Head.	Fleur-de-lis
28 gauge	7 25	7 00
26 gauge	7 00	6 75
24 gauge	6 40	6 35
22 gauge	6 05	5 90
18-20 gauge	5 35	5 75

NOTE—These prices are for full bundles; an extra charge of 25c to 35c per 100 lbs. is made for broken lots. Extra for sheets 4 ft. wide, 50 cents per 100 pounds. Extra for sheets 3 ft. wide, 28 ga. and 10¾ oz. 25 cents per 100 lbs.

CANADA PLATES—

Dull—	
18 x 24 x 52s	5 40
18 x 24 x 60s	5 50
18 x 24 x 75s	5 65

WELSH CANADA PLATES—

Dull—	
18 x 24 x 52s	7 25
18 x 24 x 60s	7 50

BRIGHT TIN PLATES—

14 x 20 x 100 lbs. base	13 50
14 x 20 IC, 112s	14 00
20 x 28 IX, 112s	16 00
20 x 28 IXXX, 56s	9 25
20 x 28 IXXX, 56s	10 00

TERNE PLATES—

20 x 28 IC, 112s	14 50

EASIER PRICES RECORDED ON ASBESTOS PRODUCTS

Montreal

An easier tendency is again evident in the market for asbestos products, pipe and boiler coverings and sheathing showing reduced quotations. Discounts on pipe coverings are increased approximately 5 per cent., boiler covering slightly reduced to $1.90 per bag, and sheathing is reduced from $8.00 to $7.75 per 100 lbs. Business in these products is stated to be somewhat improved in recent weeks, building operations now demanding supplies. Following are revised quotations:

ASBESTOS PRODUCTS—

	Off list prices
2 ply pipe covering	67½%
3 ply pipe covering	65%
4 ply pipe covering	60%
85% magnesia	45%
	Per bag
Boiler covering	1 90
	Per 100 lbs.
Asbestos sheathing	7 75

HIGHER PRICES QUOTED ON MANY LINES OF SCRAP

Montreal.

Many lines of scrap, particularly yellow and red metals, now have advanced quotations. There has been a slightly improved tone in these materials during recent weeks, with higher prices appearing on other outside markets, and the present revisions were not altogether unexpected. Brass scrap shows a price advance of one-half cent per lb., while zinc is increased one-quarter cent. Both light and heavy copper are also one-half cent per lb. higher. In ferrous metals, heavy melting steel is now quoted two dollars per ton in advance of former quotations.

Dealers state that the better feeling in the markets continues, and while the improvement has been very gradual, there is reason to believe heavier consumption will follow in the coming months. Apart from the betterment on domestic markets, an improved outlet to foreign markets seems probable. Following are revised quotations:

SCRAP—

Automobile Tires	0 50
Rubber Shoes	0 02¾
Yellow brass	0 05½
Red brass	0 08½
Light brass	0 04
Scrap zinc	0 03¼
Lead, heavy	0 04
Lead, tea	0 02
Light copper	0 08½
Heavy copper	0 10½
Wrought iron, R. Rd., No. 1 per gr. ton	9 00
Malleable scrap (ton)	8 00
Pipe scrap (ton)	6 50
Heavy smelting steel	8 50 to 9 00
No. 2 busheling	3 00
Boiler plate	7 00
No. 1 machinery cast	20 00

NEW QUOTATION GIVEN ON FURNACE SCOOPS

Montreal.

Quotations on furnace scoops for the coming season are now announced, these being now quoted at $9.00 list, with a discount of 37½ per cent.

EASIER PRICES RECORDED ON BOILER TUBES

Montreal.

Current quotations on the various sizes of boiler tubes are revised, a reduction in prices being announced. Price levels on these products for some time past have been nominal, and an average list representing approximate levels could only be given. While the present reduction is contrary to expectations on the market for steel products generally, it has been pointed out that tube prices have remained on a higher basis than other allied lines in the industry, and it was thought questionable whether the firmer tone would reflect on tube quotations. Distributors state that an easier tone has recently developed, governed by present stocks and only a moderat demand. This movement, assisted by outside competition, is said to be responsible for easier prices at this time. Only a moderate amount of activity is reported on tubes by local distributors, and following are revised quotations:

BOILER TUBES—	Seamless	Lapweld
20 x 28 I%X, 56s	9 25	
1 inch	18 50	.....
1¼ inch	20 25	.....
1½ inch	20 50	.....
1¾ inch	24 00	23 50
2 inch	22 00	19 00
2¼ inch	24 00	21 75
2½ inch	27 00	22 75
3 inch	32 00	28 50
3½ inch	39 00	33 25
4 inch	50 00	42 00

CORRUGATED SHEETS SHOW SEASONAL ACTIVITY

Montreal.

The movement of corrugated sheets is now described as fairly active, the past two weeks bringing a marked improvement in sales. The undertone of this market has firmed considerably since the strength became evident in the steel industry in general, and particularly in flat galvanized sheets. With the increased activity which should continue in the following months, and the firmer tone in basic materials, the market for corrugated is now on a fairly firm basis. Local quotations are unchanged at the following list prices and discounts:

CORRUGATED SHEETS—	Per 100 sq. ft.
No. 28 gauge	6 50
No. 26 gauge	7 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50

Less 10 per cent.

Lighter than 24 gauge and wider than 27 inches, 75c a square extra.

BAR IRON QUOTATIONS INCREASED 25 CENTS

Montreal.

The stronger tone in the steel industry, and firmer prices in other outside markets, is now reflected locally when practically all lines of bar iron and steel are advanced in price twenty-five cents per hundred pounds. Common bar iron is now quoted at $2.90 base, with a corresponding increase all down the list with the exception of band steel. This shows a further advance in price of 35 cents on the base quotation.

Higher prices on these products at this time is not surprising as the stronger tendency in the market has been apparent for some weeks past and there is still a firm tone evident. Local producers and distributors state that the general better feeling continues in an encouraging way, and while steel consumption had only shown a moderate improvement up to the present, there is reason to believe that a gradual betterment in this direction will be in evidence during the ensuing months. Most recent reports from southern producing centres are to the effect that the industry is on a generally advanced scale of

prices, with certain progress made in overcoming the coal strike. This factor is still discussed by local dealers, and while the outlook is a little brighter for the immediate future, if prolonged it may have a direct bearing on the situation in the not far distant future. Revised local quotations are as follows:

IRON & STEEL—	
Common bar iron, 100 lbs.	2 90
Refined iron	4 40
Iron finished machinery steel	2 95
Mild steel	2 90
Single reeled machinery steel	5 00
Band steel	3 25
Spring steel	4 50
Sleighshoe steel	2 90
Tire steel	3 10
Toe calk steel	3 80
Harrow tooth steel	3 05
Mining tooth steel, per lb.	0 20½
Black Diamond tool and cast steel	0 20½

NOTE—Refined iron is approximately $1.50 per 100 lbs. over base, but fluctuates owing to unsettled market.
Band steel in scroll bundles, 50c per 100 lbs. extra.

ADDITIONAL DISCOUNTS QUOTED ON RADIATORS

Montreal.

A somewhat peculiar position has developed in the market for radiators and boilers. In view of the relative increased amount of business that was expected to materialize this season, it was generally thought that prices would remain more or less firm, as the demand in the earlier weeks of the season was stated to be up to anticipation. However, extra discounts are now being quoted in several quarters, in addition to the regular discounts given below. These amount to 7½ per cents on radiators and a new level of 10 per cent. on boilers. This situation is described by distributors as temporary, there having been no general announcement made in regard to this market change, although the extra discounts are more or less general. It is pointed out, however, that with the return of confidenece in the radiation market, a settlement is looked for in the near future. Following are nominal lists and discounts, without the additional quotations recorded above:

Radiator list prices are for 1, 2 ,3, 4 and 5-column radiators per square foot.
45 in. to 38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 12 in., $1.60. Discount 59 per cent. for hot water and 60 per cent. for steam.
Wall Radiators—5 ft., $1.25; 6 ft., $1.10; 7 ft., $1.05; 9 ft., $1.05; 12 ft., $1.05. Discount 56%.
Boilers—Round hot water boilers, low base only (high base discontinued); sizes from 0 to 10, 64 per cent. off list.
Square or sectional hot water or steam boilers, 15-in., 20 per cent.
For Ontario Government trimmings add 5 per cent.
Square or sectional steam boilers, 19 in. to 36 in., 20 per cent.
Square or sectional water boilers, 19 in. to 36-in., 20 per cent. Ontario Govt. trimmings, 10 per cent. discount.
Round steam boilers, standard trimmings, 28 per cent. off. Ontario Government trimmings 25 per cent.
All prices f.o.b. Toronto, Montreal, Guelph, Hamilton, St. Catharines or Brantford.

LEAD PRODUCTS ACTIVE WITH PRICES STEADY

Montreal.

Lead and zinc products show no further changes in prices since the revision a few weeks ago, with trade reported as seasonably active. Metals in primary circles are still on an improved basis, a strong tendency being evident in lead, tin and copper. With this improvement, solder quotations are quite firm at present, the above metals being chief in the manufacture of this product. Unchanged price levels are as follows:

LEAD AND ZINC PRODUCTS—	
Lead pipe, per 100 lbs.	12 00
Lead waste, per 100 lbs.	13 00
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	17½% off.
Lead wool, lb.	0 13½
Lead sheets, 2½ lbs.	0 10
Lead sheets, 3 to 3½ lbs., sq. ft., lb.	0 09¾
D., 4 to 8 lbs., sq. ft.	0 09
Cut sheets, ¼c. lb. extra and cut sheets to size, ¾c. lb. extra.	
Solder, guaranteed, lb.	0 25½
Do., strictly, lb.	0 23½
Do., commercial, lb.	0 20½
Do., wiping, lb.	0 21½
Do., wire, lb.	0 33½
Zinc, sheets, casks	0 11
Do., broken lots	0 11½

FURTHER REVISION IN DISCOUNTS ON STEAM COCKS

Montreal.

There is a further revision recorded in the quotations on brass steam cocks, the larger sizes, from 2½ in. to 3 in., now being quoted at less 43 per cent. Other lines of compression goods remain at former discounts, with a moderate improvement noted in sales of the various lines. It is felt that building operations will have to advance to the stage of nearing completion before a reflection will be felt on these lines, and later summer is expected to bring a better movement. Following are present discounts:

Compression work, standard	45%
Fuller work, standard	30%
Quick opening compression bibbs	43%
Bath cocks, quick opening	41%
Bath cocks, compression	41%
Basin cocks, quick opening	46%
Flatway stop and waste cocks, standard	54%
Roundway stop and waste cocks, st'nd'rd	46%
Brass steam cocks, standard, ¼ in.	50%
Do., 2½ in. to 3 in.	43%
Radiator valves, standard	58%
Do., removable discs	58%
Globe, angle and check valves, standard	25%
Gate or straightway	25%
Emco globe valves	33%
Emco check valves	33%
Jenkins globe, angle, check and swing check	19%
Jenkins gate or straightway	25%
Jenkins iron body, globe and angle	15%
Jenkins iron body, gate	33%
N.P. "P" and "S" traps	40%

BUILDING NOW STIMULATES SOIL PIPE SALES

Montreal.

No further change is recorded in quotations on soil pipe and fittings since the recent reduction on certain sizes of pipe. Current trade in these products is described as showing a moderate improvement from week to week, and with more activity in building during the following months, a further increased movement is expected. Unchanged discounts are as follows:

SOIL PIPE—	
2 and 3 inch	45%
4 inch	50%
5 and 6 inch	45%
Fittings—	
2 to 6 inch	50-10%

LITTLE VARIATION IN COTTON WASTE MARKET

Montreal.

Current quotations on cotton wastes are unchanged, with the market described as steady with a fair volume of business showing. Raw cotton in primary markets continues to fluctuate slightly, but here too a much steadier situation has developed compared with earlier in the year. Following are unchanged quotations:

COTTON WASTE—Cream polishing, 18c. per lb.
White—XXX extra, 16c.; XX grand, 15c., XLCR, 14c.; X Empire, 13c.; X press, 11½c.
Colored—Fancy, 13½c; Lion, 12c; Popular, 9c; Keen, 7½c.
Wool Packing—Arrow, 25c; Axle, 22c; Anvil, 18c.
Dominion Wipers—White cotton, 20c; colored cotton, 14c.

IMPROVEMENT NOTED IN ENAMELWARE SALES

Montreal

A considerable improvement is reported in the sales of the various lines of enameled products. With building construction now well under way, supplies of this nature are being demanded. Although new lower quotations are now announced on closet combinations, there is said to be no indication of a contemplated change in the general discount on enameled ware, and 33-1/3 per cent. off is the prevailing quotation.

Sinks, roll rim—			
18 x 30			$23 00
Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$ 7 60	$ 7 40	$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide			51 40
Bath tubs, 5½ feet			57 10
Lavatories—			
17x19 in. Apron F139 or P4045			15 30
18x24 in. Apron F154 or P3845 or P3847			23 60
18x21 in. Apron F169 or P4205			17 60
17x19 in. Roll rim, F241 or P4345			12 60

LITTLE CHANGE RECORDED IN RANGE BOILERS

Montreal.

Although an improvement was anticipated in the movement of range boilers, manufacturers and distributors state that only a fair amount of business is in evidence as yet. It is pointed out, however, that building construction is still in an early stage for supplies of this nature, and further activity may develop in the later months. Little change is recorded in the market, a certain variation still appearing in quotations among the different supply houses. Following are list prices and discounts:

RANGE BOILERS:—		
5	Gallon	$13.50
12	"	14.00
18	"	15.00
25	"	16.00
30	"	17.50
35	"	20.50
40	"	22.75
52	"	38.00
66	"	60.75
82	"	74.00
100	"	103.00
120	"	117.00
144	"	164.00
168	"	187.00
192	"	210.00

Discounts, Standard weight, 50 per cent.
Extra Heavy, 40 per cent.

GRADUAL INCREASE IN PIPE FITTING TRADE

Montreal.

The movement of pipe fittings continues to show improvement, the usual activity at this season now commencing to be in evidence. With activity continuing throughout the summer months, a fairly active season in these lines is anticipated. Quotations on the various lines

are unchanged, and following are prevailing prices and discounts:

PIPE FITTINGS—	Per Cent.
Cast iron fittings	30
Bushings, cast	32
Bushings, malleable	32
Flanges	40
Plugs	30
Flange unions	30
Malleable unions	47
Dart unions, black	35
Do., galvanized	13
Nipples, ⅛ to 4" close and short	60
Do., long	65
Do., 4½ to 8" close and short	50
Do., long	55
Couplings, 4" and under	60
Do., 4½" and larger	10

Pound Goods —	Blk.	Galv.
Class A	0 54	0 67
Class B	0 20	0 28
Class C	0 13	0 20

REACTION IN TIN ON INGOT METAL MARKETS

Montreal

Tin has re-acted on the ingot metal markets, and is now reported somewhat easier. Other metals have been more or less marking time, with changes in prices ver yslight. All things considered, quotations are said to be holding fairly well in view of disappointment caused by developments at Genoa. There now seems a tendency on the part of business to free itself from the effects of political developments, and further improvement in this direction is hoped for.

TIN.—Tin has re-acted from £4 to £5 per ton in London, apparently caused chiefly by pressure to sell Banca tin. The American market has been fairly steady, but buyers are naturally not rushing to cover their requirements on a falling market. Local price is slightly easier at 34 cents.

COPPER.—Both London and New York markets show very little change, and there are no special features of interest. Prices remain firm, and futures command a distinct premium. The lowest price quoted on copper today is 13¼ cents, and there is not the same disposition to quote very far ahead. Local quotations remain at 17 cents, for electro, and 16½ cents for casting.

SPELTER.—East St. Louis is firm at $5.05, but the trend of prices here is said to be influenced by the possible duration of the coal strike. If exports can be made to Europe, which seems possible at present, the American market will in all probability advance. London continues firm. Local price 7¾ cents.

LEAD.—The American market has had a slight re-action, which is not surprising in view of the heavy buying during the past month. Spot lead, however, remains scarce in all markets, and the situation is apparently quite sound. London is reported firm and with little lead available from either Spain or Australia, there is no indication of a change in prices. Locally lead is steady at 6¾ cents.

ANTIMONY.—This metal is firmer, and demand continues fairly good. The local market is slightly higher, with Chinese quoted at 6¾ cents, high grade English at 7½ cents.

ALUMINUM.—Although a somewhat easier tendency has developed in aluminum, local quotations remain at 24 cents.

TORONTO MARKETS

TORONTO, May 13—A firmer trend in various sanitary and heating markets combined with upward price developments on such products as hoop steel and galvanized sheets, provides the chief elements in current reports on plumbing and steam-fitting materials. It is also announced that malleable fittings will be quoted under a new list, effective June 1. These revised quotations are stated to be approximately four times the prevailing net prices, with a proportionate discount level of seventy and five per cent. Prices are slightly lower on asbestos sheathing, while revised discount levels on brass steam cocks are, fifty off applying to sizes half to two inches, and 43 per cent. on sizes two and a half to three inches. The higher tendency in the sheet markets has been referred to in recent issues of Sanitary Engineer, and steel producers are now generally in a strong position with an active demand. The average price on galvanized is now $5.60, an increase of 25 cents. Quotations on other bar iron and steel items are exceptionally firm, and similar advances in the near future would not be surprising. A better volume of trade is recorded in the enameled ware, with distributors of these and similar products also experiencing improved activity in closet outfits and fixtures. Due to the upward trend in flat sheet prices, the relative position of corrugated is correspondingly strengthened. A similar development is evident in certain scrap materials, slightly higher quotations appearing on brass, zinc and heavy melting steel grades. The ingot metal trend is slightly upward on lead and spelter, but these movements do not yet appear to have a permanent basis. However, consumer interest has resulted in a marginal improvement in copper and antimony, with tin and aluminum again being weaker.

PRICES SLIGHTLY LOWER ON ASBESTOS SHEATHING

Toronto

Asbestos sheathing prices are on a revised level, the average quotation now being $7.70 per 100 lbs., a decline of thirty cents. The general tone of the asbestos market is described as a little more stable, with current business barely of a moderate nature. Improvement in this respect, however, is looked for as the season advances, manufacturers and distributors of asbestos products reporting a more encouraging volume of inquiries during recent weeks.

ASBESTOS PRODUCTS—

Pipe Covering—

Air cell, 4 ply	55 per cent. off list.
Air cell, 3 ply	60 per cent. off list.
Air cell, 2 ply	65 per cent. off standard list.
Boiler Covering	$1.90 per bag.
Asbestos Sheathing	$7.70 per 100 lbs.

PRICES ON HOOP STEEL REGISTER ADVANCE

Toronto

The effect of the coal strike in stiffening prices on the local steel market is more pronounced this week, quotations on hoop steel having been advanced 25 cents per 100 lbs. This brings the average level to $3.00. The bar iron and steel market is described as active and strong, with deliveries now falling back in some lines. It is pointed out that stronger fundamental conditions are now clearly influencing the course of buying in iron and steel, and while part of this is attributed to the coal strike, yet increase in the consuming demand has also been a factor. The feeling grows in southern quarters that the critical period of the coal strike is practically over, in that the industry as a whole has had sufficient time to adjust itself to the new conditions, and production has continued at a fairly high ratio of capacity, and orders continue to be filled with regularity in the face of an increasing demand.

IRON AND STEEL

Mild steel bars, base	2 75
Mild steel bands, 3 16 in. base	3 25
Bar iron, base	2 75
Angle iron, base	2 85
Horseshoe iron	3 60
Tire steel	3 00
Spring steel	6 00
Crucible cast sheet steel	28.00
Toe caulk iron	4 00
Hoop steel	3.00
Norway iron	12 50
Sleigh shoe steel	2.85
Mining Drill steel	18.50
Cast tool steel, high grade	30.0
Do., do., Medium	18.00

HIGHER PRICES APPEAR ON GALVANIZED SHEETS

Toronto.

While the base quotation of $5.35 on galvanized sheets is still apparent in certain quarters on the local market, it is stated that this level only applies to larger orders, and the price of $5.60 base has now become generally adopted, due to the increased demand and tardy shipments of new supplies. This change reflects the trend of the steel market, as referred to in recent weeks, and also indicates the present firm position of the producers, which is directly opposite to governing conditions some three or four months ago. The change is considered

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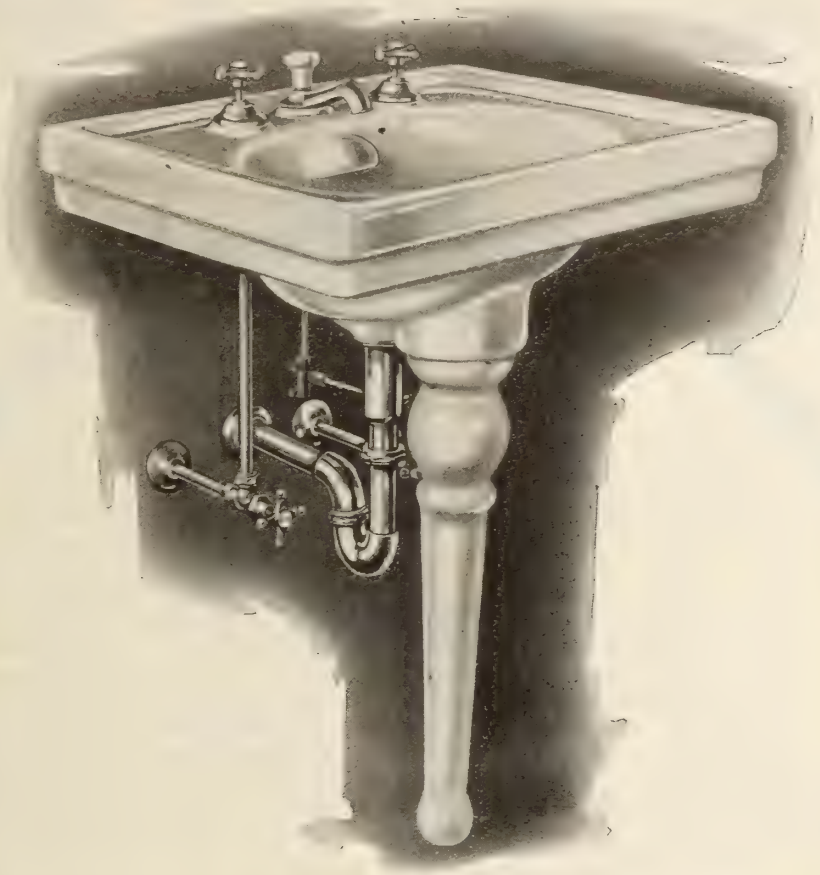

A NEW FEATURE

A-2150 *MUELLER* Combination Lavatory Supply with Pop-up-waste is so designed that the stems of the supply valves may be refitted with seat washers or repacked without disturbing the connection between the supply valve bodies and the lavatory, a feature peculiar to *MUELLER* patterns.

Five hundred of these were installed in the new addition to the King Edward Hotel, Toronto. This is only further evidence of the up-to-dateness of *MUELLER*-designed fittings.

This design has appealed to the Architect as well as to the Plumber by reason of its utility, beauty and elegance.

H. MUELLER MFG. CO., LIMITED, SARNIA, ONT.

Water, Plumbing and Gas Brass Goods and Tools.

American Factory at Decatur, Illinois, U. S. A. Branches, New York and San Francisco

Mueller Metals Co., Port Huron, Mich., Makers of "Red Tip" Brass Rod; Brass and Copper Tubing; Forgings and Castings in Brass, Bronze and Aluminum; Die Castings in White Metal and Aluminum; also Screw Machined Products.

TORONTO MARKETS

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attributable to the seasonal increase in demand coupled with the effects of the coal strike, and from a production standpoint, the opinion has been expressed the miners walk-out has been an asset to the steel industry as a whole. Much the same situation governs black and also blue annealed sheets, and recent reports from southern producing centres show that inquiries for sheets now run from carload lots to several hundred tons by jobbers and large consumers who have not hitherto realized the full strength of the market situation.

BLUE ANNEALED—		
10 gauge, base	3 50	4 25
12 gauge	3 55	4 30
14 gauge	3 60	4 35
16 gauge	3 65	4 40
BLACK—		
18-20 gauge	4 05	4 80
22-24 gauge	4 10	4 85
26 gauge	4 15	4 90
28 gauge	4 25	5 00

Charge of 25c. per 100 lbs., is made for less than case lots. An extra 10c per 100 lbs. is also charged on sheets 26 in. wide.

GALVANIZED—	Queen's Head.	Fleur-de-lis.
28 gauge	7 50	7 00
26 gauge	7 25	6 75
24 gauge	6 85	6 35
22 gauge	6 40	5 90
18 and 20 gauge	6 25	5 75
Premier and Apollo—		
10 20¾ oz.	6 00	6 50
U. S. 28, base	5 60	6 10
U. S. 26	5 30	5 80
22 and 24	5 15	5 65
18 and 20	5 00	5 50
16	4 85	5 35
12 and 14	4 70	5 20

An extra is now charged on galvanized sheets, 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20 cents per 100 pounds. Other gauges show no change for different widths.

An extra 40 cents per 100 lbs., is charged for Keystone and Premier brands copper-bearing sheets.

	Per box
PLATES, CANADA—	
Dull, 60 sheets	5 30
Ordinary, 52 sheets	5 25
PLATES, COKE TIN—	
IC, 20 x 28, 112 sheets	12 50
IX, 20 x 28, 112 sheets	16 00
IX, 20 x 28, 56 sheets	8 50
PLATES, CHARCOAL TIN—	
IX, 20 x 28, 112 sheets	10 00
IXX, 20 x 28, 56 sheets	12 00
PLATES, TERNE—	
10 x 14 x 20, 112 sheets	11 50

MALLEABLE FITTINGS TO BE QUOTED UNDER LIST

Toronto.

At a recent meeting representative of the plumbing and heating jobbers of Ontario and also Montreal, it was decided to adopt a new list on malleable fittings, effective June 1. Booklets covering this new list are being prepared, and it is understood that the basis will be approximately four times the prevailing net price, with proportionate discounts of 70 and 5 per cent. off. Quotations on these products, therefore, will be practically unchanged only the method of listing being varied. Current demand for pipe fittings is stated to be slightly improving, with no other developments having been announced. Following are prevailing quotations:

PIPE FITTINGS—	Per cent.
Cast iron fittings	30
Plugs, cast iron	30
Ells, solid	30
Do., countersink	30
Bushings, malle.	32
Do., cast	32
Unions, ⅛ in. to 2 in.	47
Do., ⅜ in., 2¼ to 4 in.	47
Flanged unions, std.	30
Flanged fittings	30
Dart unions, blk., ¼ to 2 in.	33⅓
Do., ⅛ in., 2¼ to 4 in.	23
Do., galvd., add to black	30
Nipples, blk., and galvd. ⅛ to 4 in. close and short	60
Do., 4½ in. and larger	50
Do., long, ⅛ in. to 4 in.	65
Do., 4½ in. and larger	55
Do., running thread	40
Couplings, 4 in. and under	30
Do., 4½ in. and larger	10

MALLEABLE FITTINGS—		
Class A	0 54	0 67
Class B	0 29	0 28
Class C	0 13	0 20

BRISKER TRADE NOTED IN ENAMELED WARE

Toronto

Conditions in the enameled ware markets are stated to be much improved by distributors and manufacturers of these products. This recent development is more or less generally ascribed to the reflection of building activity, a factor which is now evident in almost every section of the country. Quotations, while remaining unchanged, are stated to be considerably firmer than were apparent during the earlier part of the season, this latter tendency being contingent upon the recent improvement in demand for enameled products generally. Distributors anticipate a much better season in these goods than was recorded last year, when construction work was more or less restricted owing to the inflated costs. It is pointed out that building costs have greatly decreased during the past two years, and all kinds of sanitary and heating materials are generally on a much lower scale. Following are current enameled ware quotations:

ENAMELLED WARE—	
Enamelled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.	51 40
Do., 5½ ft.	57 10
Lavatories—	
17x10" Apron F139 or P4045	15 30
18x24" Apron F154 or P3845 or P3847	23 60
18x21" Apron F169 or P4205	17 60
18x21" Roll Rim, F197, F199 or P4655-6	15 40
17x19" Roll Rim, F241 or P4345	12 60
Sinks, Roll Rim, 16x24 in.	18 10
Do., 18 x 30 in.	23 00
Do., 20 x 30 in.	24 70

Sinks, Flat Rim—	3 only	2 only	1 only
16x24	$7 60	$7 70	$7 80
18x30	8 50	8 60	8 70
20x30	9 70	9 80	9 90

Above prices, list, less 33 1-3 per cent.

All steel enamel baths, 4 and 4½ ft.	$14 00
Do., 5 ft.	15 00
Do. 5½ ft.	16 75

These quotations are net.

FIRMER TREND RECORDED IN CORRUGATED MARKETS

Toronto.

The recent decrease in the quotations on flat galvanized sheets, has reflected in the firmer tone now evident on corrugated sheets. These products are reported to be experiencing an improved demand, and conditions generally are on a much stronger basis than during the earlier months of the year, when prices on the heavier gauges were purely nominal. The advent of warmer weather has provided increased opportunities for structural activity, and distributors state that a uniform demand for corrugated throughout the ensuing season is generally anticipated. Following are the average levels prevailing on the local markets:

CORRUGATED SHEETS—	Per 100 Sq. Ft.
No. 28 gauge	$6 50
No. 26 gauge	7 00
No. 26, U. S. gauge	8 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50

Less 10 per cent.

Lighter than 24 gauge and wider than 27 inches, 75c. per square extra.

REVISE QUOTATIONS ON CLOSET COMBINATIONS

Toronto.

Some revision has been announced locally in the various quotations on closet outfits, these generally reverting to the levels recorded earlier in the season. Distributors state that attempts to maintain uniform levels on the market for these products, have been more or less ineffective due to the shading of the nominal list for attractive orders in quantity. This condition was noted in a previous report, and was typical of the situation which has been generally apparent throughout the present season. However, the decision to revert to former quotations is looked upon as a step in the right direction and, it is stated, should have a settling effect on the local markets and serve to produce a greater degree of confidence throughout the trade in future. Following are prevailing prices:

CLOSET COMBINATIONS, low down	each
Closet, standard outfit, oak	26 00
Do., with post hinge seat	26 50
Do., mahogany Vitro or Pussyfoot with mahogany post hinge seat and cover	28 75
Do., vitreous china, with oak post hinge seat and cover	28 75
Do., vitreous china, with mahogany post hinge seat and cover	29 00
Do., white Vitro or Pussyfoot, with oak post hinge seat and cover	28 75
Do., white Vitro or Pussyfoot with mahogany post hinge, seat and cover	29 00
Do., enamelled iron tank with oak post hinge seat and cover	28 75
Do., enamelled iron tank with mahogany post hinge seat and cover	29 00
Additions or reductions to above	
Add for reverse trap bowl	0 75
Add for syphon jet bowl	7 00
For ⅜ in. valve on supply pipe	1 50
Deduct for supply pipe	0 70
Deduct for floor flange and bolts	0 60

CLOSET BOWLS—	
Washdown bowl less spud	10 00
Reversible trap bowl, less spud	11 25
Syphon jet bowl, less spud	17 00
"Richelieu" bowl	10 50
CLOSET TANKS, low down or Pussyfoot tank, with fittings, less seat	13 20
White Vitro or Pussyfoot tank with fittings, flush elbow and supply	15 65
Vitreous china tank with fittings, flush elbow and supply	18 00
Enamelled iron tank with fittings, flush elbow and supply	18 00
CLOSET SEATS—	
Oak post hinge seat and cover	4 15
Oak wood strip seat and cover	3 50
Mahogany finish post hinge seat and cover	4 35

CONDITIONS IN BOILER TUBES REMAIN QUIET

Toronto.

That distributors of boiler tubes have been out to secure the business even if each order taken involves a more or less direct loss of varying proportions, would be indicated by the shading in these products, which has been recorded, thus rendering the current list of prices merely nominal. However, it is stated that the majority of prevailing business is being

(Continued on page 34)

In a wide Circle of Plumbers you'll find I. M. Pipe Fittings used

¶ Why hesitate to choose when you know Pipe Fittings bearing the Trade Mark I. M. are real good.

¶ Made with Iron of high tensile strength, proper proportions and correct tappings.

¶ We do not mean to use a great many words in explanation. Our reputation for both Service and Quality is Nation-Wide.

¶ If you have not already used these Pipe Fittings start today—it will pay you.

Quality Products

Prompt Service

International Malleable Iron Co., Limited

Guelph, Ontario, Canada

TORONTO MARKETS

(Continued from page 32)

transacted at the levels given below, some variation being evident according to the size and specifications of the individual order. The liquidation of stocks of tubes has been a factor which all distributors have had to reckon with during the past season, and the fact that the movement has mainly been confined to the smaller sizes for repair work, is described as a prime element in the situation. Stocks of larger-sized tubes are stated to have been particularly embarrassing, in view of the small demand experienced for these lines. The stiffening recently recorded throughout the steel industry has not yet affected boiler tubes in some quarters to the same extent as on other steel products, due to the ratio of stocks on hand which were secured when costs were high. However, with the brighter tone in steel production circles generally, some signs of improvement in the boiler tube market are looked for in the future, although it is admitted by certain distributors that another season may roll around before this can definitely be stated to have developed. Following is an average price list recorded locally:

BOILER TUBES—

	Seamless	Lapweld
1 inch	21 00	.....
1-¼ inch	21 50	.....
1-½ inch	22 00	.....
1-¾ inch	23 00	.....
2 inch	22 00	17 00
2-¼ inch	26 00	18 00
2-½ inch	30 00	20 00
3 inch	34 00	25 00
3-¼ inch	43 00	27 00
3-½ inch	47 00	28 00
4 inch	58 00	35 50

SOME EXTRA DISCOUNTS APPEAR ON RADIATORS

Toronto

A somewhat unexpected situation has now developed in radiators and boilers, extra discounts being quoted in various quarters on these products, in addition to the regular discounts off the list prices given below. This change has not been generally announced, but is stated to be the result of keen competition.

Distributors generally look upon these conditions as more or less temporary, believing a settlement to be imminent. However, the fact that the extra discounts are practically general, places quotations on radiators at an additional 7½ per cent. off and on boilers at 10 per cent., although the nominal list prices remain as shown herewith. In view of the improvement anticipated in radiation trade, coupled with more confidence regarding the future strength in these markets, the unsettlement referred to is described as unusual and of a transitory nature.

RADIATORS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60.

Discount on 2, 3, 4 and 5-column standard sizes, 59 per cent. for water and 60 per cent. for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 51 per cent. for water and 52 per cent. for steam.

Discounts on 1-column hospital size, water 33 per cent.; steam 34 per cent.

Wall radiators—5 ft. $1.15; 6 ft. $1.10; 7 ft. $1.05; 9 ft., $1.05; 12 ft., $1.05. Discount 56 per cent.

BOILERS—

Water:

Round 64 per cent. off list. Square 15 per cent. off list.

Steam:

Round, 28 per cent. off list; square, 15 per cent. off list.

FAIR SALE IN COPPER AND BRASS GOODS

Toronto

The recent improvement recorded in the movement of copper and brass products is stated to be fairly well maintained. Some slight fluctuations have been noted in quotations governing metal in the primary stage, but such minor changes have failed to reflect in prices on the finished products, such as sheets, rod and tubing. The following levels which have been in effect during the past few weeks generally govern the local market.

BRASS—	
Sheets base, per lb.	0 21
Rods, base, per lb.	0 19
Tubing, base, per lb.	0 23
COPPER —	
Rods, base, per lb.	0 27
Soft sheets, plain, 1 oz. and heavier, lb.	0 28
Do., plain tinned, 16 oz. and heavier, per lb.	0 35
Do., polished and tinned, 16 oz. and heavier, lb.	0 40
Tubing	0 27

WROUGHT PIPE SHOWS GAIN IN STRENGTH

Toronto

A stronger tone is now evident in wrought piping, this tendency being a reflection of the stiffening in quotations on steel products generally. The demand for steel pipe has also increased slightly, both on the domestic and primary markets. Prices in the south are described as firm, and this tendency is more or less expected to spread, based upon recent developments in basic materials. For the present, list No. 54, continues to govern domestic quotations.

WROUGHT PIPE

Price List No. 54. December 22, 1921.

Standard Buttweld Pipe S/C

Size	Steel Blk.	Steel Galv.	Gen. Wrot. Iron Blk.	Gen. Wrot. Iron Galv.
⅛ in.	$6 00	$ 8 00	$	$ ....
¼ in.	3 84	5 94	7 20	9 30
⅜ in.	3 84	5 94	7 20	9 30
½ in.	4 85	6 46	7 31	8 93
¾ in.	5 87	7 71	8 86	10 70
1 in.	8 16	11 05	12 58	15 30
1¼ in.	11 04	14 95	17 02	20 70
1½ in.	13 20	17 88	20 35	24 75
2 in.	17 76	24 05	27 38	33 30
2½ in.	28 08	38 03	.....	.....
3 in.	36 72	49 73	.....	.....
3½ in.	47 84	63 48	.....	.....
4 in.	56 68	75 21	.....	.....

Standard Lapweld Pipe S/C

Per 100 feet.

Size.	Steel Blk.	Steel Galv.	Gen. Wrot. Iron Blk.	Gen. Wrot. Iron Galv.
2 in.	$21 46	$27,38	$31,08	$37 00
2½ in.	31,50	40 05	46 80	56 16
3 in.	41 31	53 55	61 20	73 44
3½ in.	48 76	65 32	72 68	89 24
4 in.	57 77	77 39	86 11	105 73
4½ in.	66 04	86 36	1 04	1 24
5 in.	76 96	100 64	1 21	1 45
6 in.	1 00	1 31	1 57	1 88
7 in.	1 33	1 76	2 02	2 45
8L in.	1 40	1 85	2 13	2 58
8 in.	1 61	2 13	2 45	2 97
9 in.	1 97	2 59	2 97	3 59
10L in.	1 82	2 40	2 75	3 33
10 in.	2 35	3 09	3 54	4 28

FAIR BUSINESS RECORDED IN TROUGH AND PIPE

Toronto

"Considering the present season of the year," stated one manufacturer to Sanitary Engineer, "the current volume of trade in eavestrough and conductor pipe is described as fairly good." It was pointed out that the recent weather conditions had hardly been conducive to brisk activity in these products, but with the advent of warmer weather, coupled with prospects for renewed building endeavours on a more extensive scale than last season, a marked improvement in general conditions is looked for. Following are unchanged lists and discounts:

TROUGH EAVE—

O. G. Square Bead and half round. Size in girth: Per 100 ft.

8 in.	15 90
10 in.	17 70
12 in.	21 20
15 in.	28 80
18 in.	36 50

Less 70 and 10 per cent.

PIPE (CONDUCTOR)—

Plain, round or corrugated. Per 100 ft. in 10 ft. lengths.

2 in., in 10 ft. lengths, list	18 40
3 in., in 10 ft. lengths, list	22 30
4 in., in 10 ft. lengths, list	29 60
5 in., in 10 ft. lengths, list	40 00
6 in., in 10 ft. lengths	49 00

Less 70-10 per cent.

ELBOWS (CONDUCTOR)—

2 inch, list	5 25
3 inch, list	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00

Less 60 per cent.

COMPRESSION GOODS AT RECENTLY REVISED LEVELS

Toronto

Quotations on the various lines of compression goods remain at the recently revised levels, with just a moderate volume of trade reported. In these markets, however, a general improvement is looked for in the near future, consequent upon the prospects for increased building activity reflecting a better demand for these products. The undertone of the market has recorded very little variation, although the recent easier tone to certain primary metals, resulted in softer tendency in some finished products. It is noted, however, that virgin metals have somewhat recovered from this depression. Following are the average quotations on compression goods.

VALVES—

	Per cent.
Compression work, standard	45
Fuller work, standard	30
Bath cocks, compression	41
Do., Fuller	25
Flatway stop and wastecocks, stand'd.	54
Roundway stop and waste cocks, std.	46
Brass steam cocks, standard ½" to 2 ins	50
Do., do., do. 2½ ins. to 3"	43
Globe, angle and check valves, std.	25
Mueller globe, angle and check	25
Mueller composition disc steam valves	33
J. M. T. valves, screwed	20|10
J. M. T. gate valves, screwed	25|10
Jenkins gate or straightway, screwed	25|10
Jenkins globe, screwed	19|10
Radiator valves, standard	58
Do., removable disc	58
Emco, J. D., rad. valves, screwed	33
Emco swing check, ⅜" and ½"	40
Do., Do., other sizes	33
Webber gate valves, screwed	33
Emco globe valves, std.	25
Emco globe valves, J.D., screwed	33
Basin cocks—	
No. 0 and 1 Fuller pattern	30
Quick opening No. 3633	50
No. 3623, plain or index handle	34

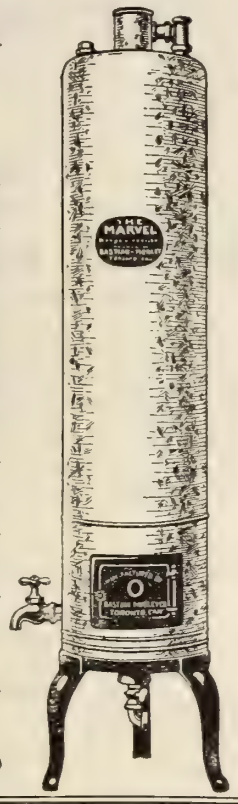
(Continued on page 36)

The

MARVEL

GAS WATER HEATER

You Can Install It Anywhere



Boiler and Heater are combined into one unit in the MARVEL. It's so compact and simple you can instal it anywhere — with less trouble and in less time than old-style gas water heaters.

And it makes a better job—a job that your customers will tell their friends about.

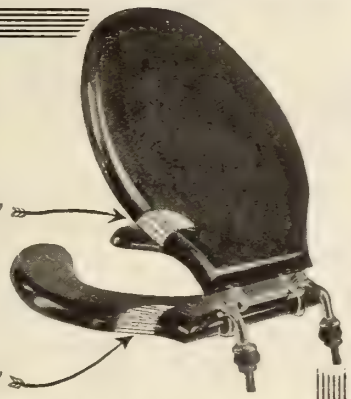
No coils — lime-proof free from rust and sediment. Silent and odorless. Saves gas! Can be connected with furnace or range in winter, if desired.

The "Marvel" costs no more than ordinary heaters. You get a good discount—handle the job in less time — give complete satisfaction. Write for full information and descriptive literature.

Bastian - Morley Limited

Makers of the Royal "Automatic" Gas Water Heater

195 Victoria St., TORONTO



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"EVERLASTING"

Even the severe conditions of damp, cold basements and cellars of schools, factories, or other public places, where closets are subjected to all kinds of abuse and mistreatment, will not warp, crack or split these wonderfully satisfactory toilet seats.

They are made of 7- and 9-ply, air-seasoned wood veneer, held together by our special wood cement. This cement is proof against heat, cold or dampness. The veneering is distributed according to the strain and wear required of the different parts.

Canadian Veneering Company, Incorporated

Acton Vale Quebec

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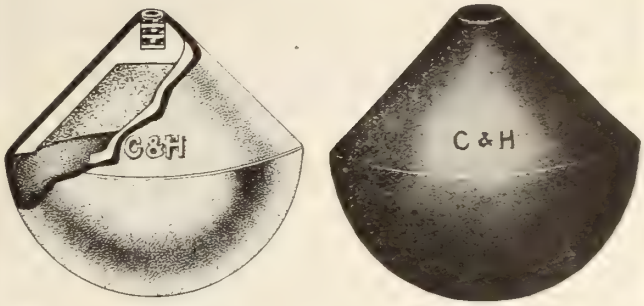
C & H
REGISTERED



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Anti Splashers	N.P. Flanges	Reamers
Augurs	Flush Valves	Seat Bolts
Ball Cocks and B.C. Repairs	Force Cups	Sink Bolts
Bath Room Trimmings	Furnace and Repairs	Sink Strainers
Bending Springs	Gas Water Heater	Soldering Paste
Bibb Screws & Nuts	Kerosene " "	Stoppers
Bibb Washers of all Kinds	Hack Saw Blades	Tap Plugs
Bumpers	Hinges	Toggle Repairs
Closet Bolts	Hercules D.P.S.	Washers of all Kinds
" Screws	Packing	Wrenches Trimo Stillson and Vulcan and Repairs
" Washers	Pipe Hangers	
" Elbows	" Cutters	
" Offsets	" Repairs	
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Candles	Floor and Ceiling Plates	
Chain N.P.	"Porcela"	
Cement (Joint)		

Mail orders given prompt attention

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269 West Richmond St.
Toronto

TORONTO MARKETS

(Continued from page 34)

MAINTAIN BETTERMENT IN SCRAP MARKETS

Toronto

The slight improvement recently shown in the scrap material market has generally been maintained. Owing to the advance in the price of pig iron, the cast iron division has been a little more active. Scrap rubber is still very dull, however, but a few more copper sales are reported to have taken place. General business is still of a hand-to-mouth character, with practically no speculative buying being recorded. Following are the usual averages of dealers prices for fairly large quantities, showing a number of slight changes to higher levels:

SCRAP MATERIALS—

Scrap Iron		
Gross Tons —		
Heavy melting steel (Hamilton)	11 50	$12 00
Borings and turnings	2 00	3 00
Rerolling rails	10 50	11 50
Scrap pipe	6 00	7 00
No. 1 railroad wrought	10 25	11 25
Steel turnings (Hamilton)	7 00	7 50
Agricultural malleable	10 00	11 00
Railroad malleable	11 00	12 00
Net tons —		
No. 1 cast	18 00	19 00
Stove plate	12 00	13 00
Grate bars	11 00	12 00
Standard car wheels	15 00	15 50
Scrap Metals.		
Heavy copper and wire	10 25	11 25
Light copper	8 25	9 25
No. 1 composition	9 00	10 00
No. 1 comp. turnings	6 00	7 00
Light brass	3 00	3 50
Heavy yellow brass	5 00	6 00
Heavy lead	4 50	5 00
Tea lead	2 25	2 75
Scrap zinc	4 25	4 75
Scrap Rubber.		
Boots and shoes	2 25	2 50
Lumbermen's rubber boots	1 50	1 75
Auto tires	0 50	0 60
Solid tires	0 75	1 25

LEAD AND SPELTER NOW SLIGHTLY HIGHER

Toronto.

Some price developments have been recorded on the domestic ingot metal markets, these changes particularly affecting lead, spelter and aluminum. Lead and spelter, are slightly increased in price, thus reflecting the firmer trend noted in these metals during recent weeks. Aluminum, however, has reached new lower price levels on the local centre, recent transactions being recorded at several cents below the former averages. Antimony is also appearing with a firmer tone, this being attributed to unsettled conditions in China.

COPPER.—Copper prices on southern markets continue to receive considerable attention, but the actual strength of this metal is little altered, scrap copper remaining conspicuous, while prices still hover in the neighborhood of thirteen cents at New York. Locally, the quotation of 16½ cents continues to cover the domestic level:

TIN.—Fluctuations in tin prices have been extremely narrow, the variance in exchange practically covering any difference. On the whole, this market is generally described as quiet, but easier. Local prices are slightly lower, the level at 33½ cents being general.

LEAD.—Lead continues firm on both foreign and domestic markets, and local prices have increased to the level of $6.60, an increase of ten cents.

SPELTER.—Quotations on spelter are locally advanced to $6.85, an increase of ten cents from the previous level. This reflects the general improvement in this metal, which was pointed out in last week's report.

ANTIMONY—This market remains steady with the firmer tendency being maintained. A little uncertainty is expressed in some quarters owing to the unsettlement in China restricting future supplies from that direction. Up to the present, however, no material change has been recorded in domestic prices, the range generally being between 6 and 7 cents.

ALUMINUM.—While some increase in the average run of business in aluminum was reported, this proved to be only a temporary spurt and the tone has faded away. Prices have also reacted locally, recent transactions having been made at prices several cents below the previous levels. The average domestic quotation now hovers between 20 and 21 cents.

WINNIPEG MARKETS

WINNIPEG, May 13.—The seasonal improvement in current business conditions constitutes one of the feature elements in Western plumbing and steam-fitting circles. Many individual lines have reflected a firmer market tendency during the past few days, with activity in building now being felt in various quarters. Soil pipe and fittings and lead and zinc goods are included among lines at present recording a brisk movement, with many other sanitary and heating products also showing signs of improvement.

DISCOUNT REVISED ON COMPRESSION BATH COCKS

Winnipeg.

Through a slight change in discounts on certain lines of compression goods, prices are a trifle lower on compression bath cocks and brass steam cocks. Following are the present discounts with the revision on the above:

Compression work, standard	40% & 50%
Fuller Work, Standard	30%
Bath cocks, compression	41%
Bath cocks, quick opening	41%
Basin cocks, compression	30%
Basin cocks, quick opening	45%
Brass steam cocks	35%

TRADE NOW IMPROVING IN LEAD PRODUCTS

Winnipeg.

Manufacturers state that business in lead and zinc products is developing slowly, and is becoming more satisfactory, as each week shows a slightly better movement. Building is now beginning to be very active and is reflecting somewhat on many of these lines. The tone of the market is described as slightly firmer since the revision of a few weeks ago. Unchanged quotations are as follows:

Lead pipe	$11.61 per 100 lb.
Lead waste	12.51 per 100 lb.
Lead traps and bends	12½%
Lead sheets, in rolls	10¼c. lb.
Do., less	11c. lb.
Solder, ½ and ½case lots	26c. lb.
Do., less	27c. lb.
Do., wiping, cases	25c. lb.
Less than cases	25c. lb.
Zinc	13c. lb.

BETTER TRADE IN SOIL PIPE AND FITTINGS

Winnipeg.

Trade in soil pipe and fittings is stated by distributors of these products to be slightly improved since the recent revision in quotations. The increased activity in building circles is generally accountable for a moderate reflection in this brisker trade. Following are prevailing discounts:

SOIL PIPE—

2 and 3 in.	27½% off
4 in.	37½% off.
5 and 6 in.	32½% off
8 inch	10% adv.

SOIL PIPE FITTINGS—

2 and 3 inch.	47½% off
4, 5 and 6 inch	50% off
8 inch	10% adv.

BETTER TRADE EXPECTED IN WROUGHT PIPING

Winnipeg.

Current business in pipe is described as comparing very favorably with the volume of trade last year, while increasing sales have been generally reported during the last few weeks. With an improvement in basic market conditions, it is naturally expected that brisker trade will be recorded throughout the ensuing months. Following are unchanged price levels:

BLACK PIPE

F.O.B.	Winnipeg	Calgary, Edmonton, Lethbridge & Medicine Hat.	Saskatoon. Regina.	Brandon.
LIST NO. 54.				
⅛	$ 6 25	$ 0 28	$ 0 20	$ 0 17	$ 0 11
¼	4 52	0 47	0 34	0 30	0 19
⅜	4 67	0 62	0 45	0 40	0 26
½	5 95	0 94	0 67	0 59	0 38
¾	7 20	1 25	0 90	0 79	0 51
1	10 04	1 85	1 34	1 17	0 75
1¼	13 60	2 51	1 80	1 57	1 00
1½	16 26	3 01	2 15	1 88	1 21
2	21 88	4 04	2 88	2 52	1 62
2½	34 61	6 40	4 60	4 02	2 68
3	45 26	8 38	6 03	5 28	3 39
3½	58 88	10 12	7 20	6 30	4 05
4	69 75	11 97	8 53	7 46	4 80
4½	81 22	13 91	10 04	8 75	5 62
5	94 73	16 30	11 60	10 15	6 52
6	122 86	21 10	15 00	13 14	8 44
7	181 18	26 14	18 62	16 28	10 46
8L	190 38	27 50	20 00	17 50	11 25
9	267 05	37 60	26 96	23 59	15 16
10L	248 00	35 20	25 60	22 40	14 40

GALVANIZED PIPE

⅛	$ 8 50	$ 0 28	$ 0 20	$ 0 17	$ 0 11
¼	7 04	0 47	0 34	0 30	0 19
⅜	7 09	0 62	0 45	0 40	0 26
½	7 89	0 94	0 67	0 59	0 38
¾	9 41	1 25	0 90	0 79	0 51
1	13 50	1 85	1 34	1 17	0 75
1¼	18 29	2 51	1 80	1 57	1 00
1½	21 87	3 01	2 15	1 88	1 21
2	29 43	4 04	2 88	2 52	1 62
2½	46 54	6 40	4 60	4 02	2 68
3	60 86	8 38	6 03	5 28	3 39
3½	77 65	10 12	7 20	6 30	4 05
4	92 00	11 97	8 53	7 46	4 80
4½	105 60	13 91	10 04	8 75	5 62
5	123 15	16 30	11 60	10 15	6 52
6	159 70	21 10	15 00	13 14	8 44
7	.....	26 14	18 62	16 28	10 45
8	.....	27 50	20 00	17 50	11 22

"PUSSYFOOT"

SILENT AS A PUSSY'S FOOT QUICK AS A CAT

Silent—Efficient—Durable
Because of these qualities and the fact that it **costs no more**, the Pussyfoot is easy to sell, and, once sold, is a monument to your discrimination.
If you are not displaying the Pussyfoot you are losing good business.

PLUMBERS SPECIFY "PUSSYFOOT" to your jobber

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THE CANADA METAL CO., LIMITED
TORONTO

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That is, three times bigger in heat-giving qualities. This bigness comes from the corrugated crown plate, which has three times the fire surface that a flat one has.

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Clean-out device located at head of trap. Any obstruction can be located and removed in five minutes without disconnecting from floor or water. Cannot overflow. Silent in operation.

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Suitable for the approaching period of building activity, road construction, etc. This is a line of great importance in making successful, profitable contracts. Our C. T. Brand of Wrought Pipe has been

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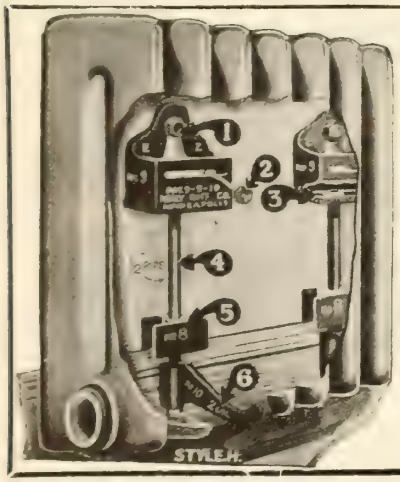

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Wolverine One-piece Bath and Basin Supplies are Adjustable.

Save time and material as tail pieces not required.

Your Metal and Rubber lines should bear the name Wolverine. Absolutely guaranteed and time tested.

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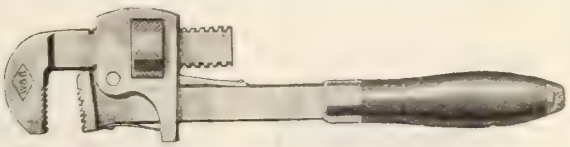

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You can't expect a cheap, inefficient wrench to hold and turn rusted pipe or fittings. It's bound to slip or break.

WILLIAMS' STILLSON WRENCH is dependable; it is made for heavy duty. Drop-forged from special steel, carefully hardened and tempered, its sturdy strength is proof against the knocks and strains of hard service. The tough teeth retain their sharpness; they "bite" instantly, yet release readily.

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RIVETED RANGE BOILERS

Made by the old reliable

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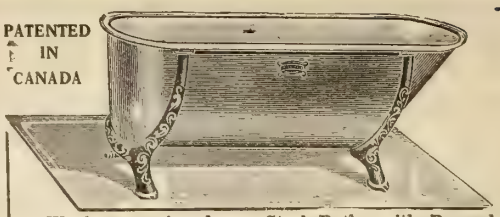

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They now look like the expensive cast enamel baths but are the **same price as before.**
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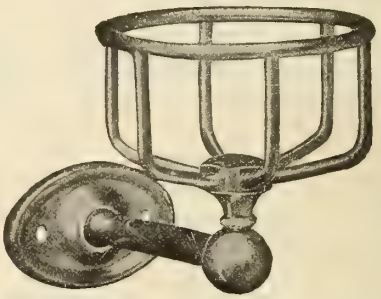

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Easier to attach
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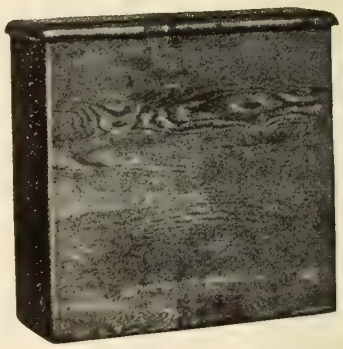

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Strongly made of superior materials, and thoroughly proof against warping, opening, etc. Investigate the Bull Dog line of products.

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Ask your jobber for No. 4 Somerville Combination Self Venting Fitting. Canadian rights fully covered.

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The Martin Portable Vise Stand

It weighs but fifty pounds, can easily be demounted and carried anywhere. The Martin Portable Vise Stand can then be put up in two seconds, without the need of bolts, screws or fastenings of any kind. It stands without hitching and is indispensable on any job where pipe or conduit must be bent, cut or threaded. Try one for 10 days free.
Get one from your jobber to-day or write us if he can't supply you.

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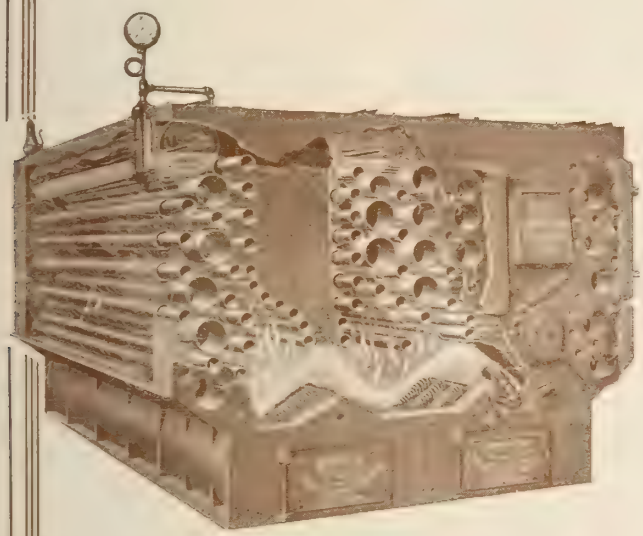
Steam—27 sizes, 375 to 10,000 sq. ft.

For Efficient Heating install a "Spencer" Heater



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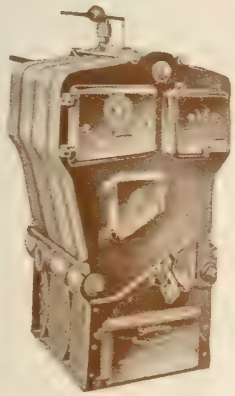

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VITRO NO TROUBLE TANK

Every Part Perfect

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Plumber and Steamfitter of Canada

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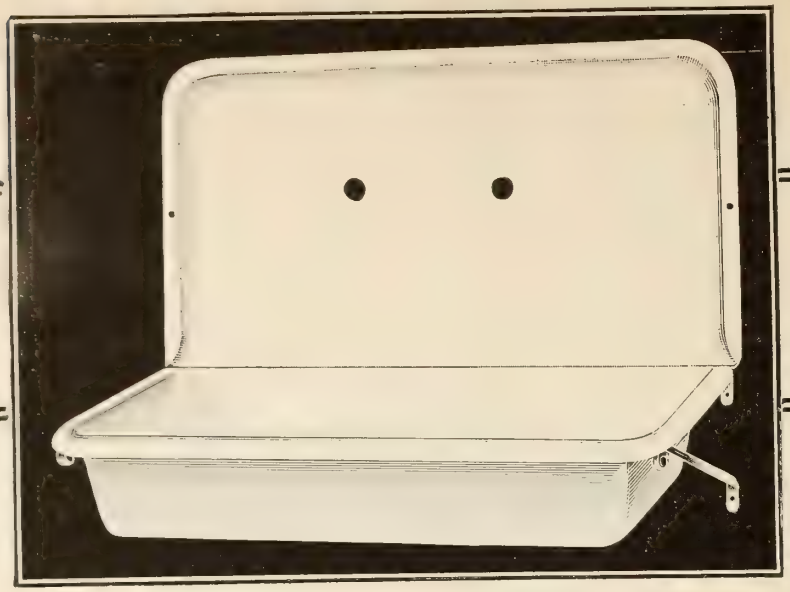

A New Product with a Great Future

This new white enameled Roll Rim Sink fills a big gap in a big market. Such a sink has been needed for years. We introduce it now with the assurance that it is the perfect article—a product on which we have spent over seven years of study and hard work.

SMP *White Enameled* ROLL RIM SINKS

are almost **50 per cent.** cheaper in cost than other sinks! This saving amounts to a very big total where a man buys large quantities of sinks in a year. And it effects quite a saving for the individual householders too.

While immensely strong, an SMP Roll Rim Sink, packed complete for shipment, weighs only 58 lbs. Other sinks weigh from 120 to 150 lbs.! Think of the saving in freight and haulage.

They are made of 16-gauge rust-resisting Armco Iron with an everlasting covering of very special enamel—identical to that used on the finest ranges and kitchen table tops. The outside is given two coats of this super-enamel and the inside three coats. It is pure white, of course, and the surface is smooth as glass.

Each SMP Roll Rim Sink is packed separately, ready for the job, including nickel plated brass strainer, special adjustable brackets and couplings for iron and lead pipes. With each sink we supply connections for 1½ inch lead pipe and 1½ inch iron pipes.

The size of the sink is 18 inches by 30 inches, with a back 16 inches high, leaving openings for hot and cold water taps.

The introduction of this splendid, inexpensive sink is of great importance to hardware merchants, plumbers and supply houses. This line has a definitely big future and warrants your immediate interest.

SHIPMENTS MADE PROMPTLY

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THE SHEET METAL PRODUCTS Co OF CANADA LIMITED

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TRADE B.O.T. MARK

Syphon Closets

QUALITY SERVICE

CANADIAN BRASS CO. LIMITED

NOT UNTIL YESTERDAY

did I ever stop to figure just how much business there is for me in this district if I only knew how to get after it.

There are Public Buildings, Railway Stations and Hotels all around me. In many of these I have noticed dirty broken Closet Seats, leaky Taps and the like, and NOT UNTIL YESTERDAY did I have the heart to go to headquarters and get the job of replacing them.

I need all the business I can lay hands on these days and that is why I went out to look for some to-day.

Well, I was over at the ..... Hotel and had a talk with the Manager. At first he wouldn't believe that he could have new equipment installed in the Lavatories and Washrooms at very moderate cost. I said, "I'll put a B.O.T. Self-Raising Seat on one of those Closets in the Public Lavatory and a B.O.T. Blanco White Seat on one of the Private Closets and I'll bet the price of the Seats that they will improve the appearance of these rooms at least fifty per cent." I could see that he was nibbling and finally he bit, saying: "I'll just take you up on that."

(Two hours later) Say, friends, you should have seen the look in the Manager's eyes when he spotted those B.O.T. Seats. "You win," said he. "Better replace them all, and if new Nickel Taps will make as big an improvement in the Washrooms, you may go over them at the same time."

I've been in the Plumbing and Heating Business for fourteen years now and NOT UNTIL YESTERDAY did I realize that there is all kinds of business for the fellow who goes out after it.

There are thousands of people who do not know that they could get a new Closet Seat without buying a new Outfit or that a new Tap can be installed in five minutes. My business turnover has doubled since I started going after the business and installing B.O.T. Closets and Canadian Brass Products. We must educate the public, it's our duty, and we will come out on the right side by doing so.

(Signed)
NEW-METHOD SANITARY ENGINEER.

QUALITY SERVICE

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Like "Sterling"

CANADIAN BRASS GALT ONT

On Silver

Brass Goods

Hall Marks

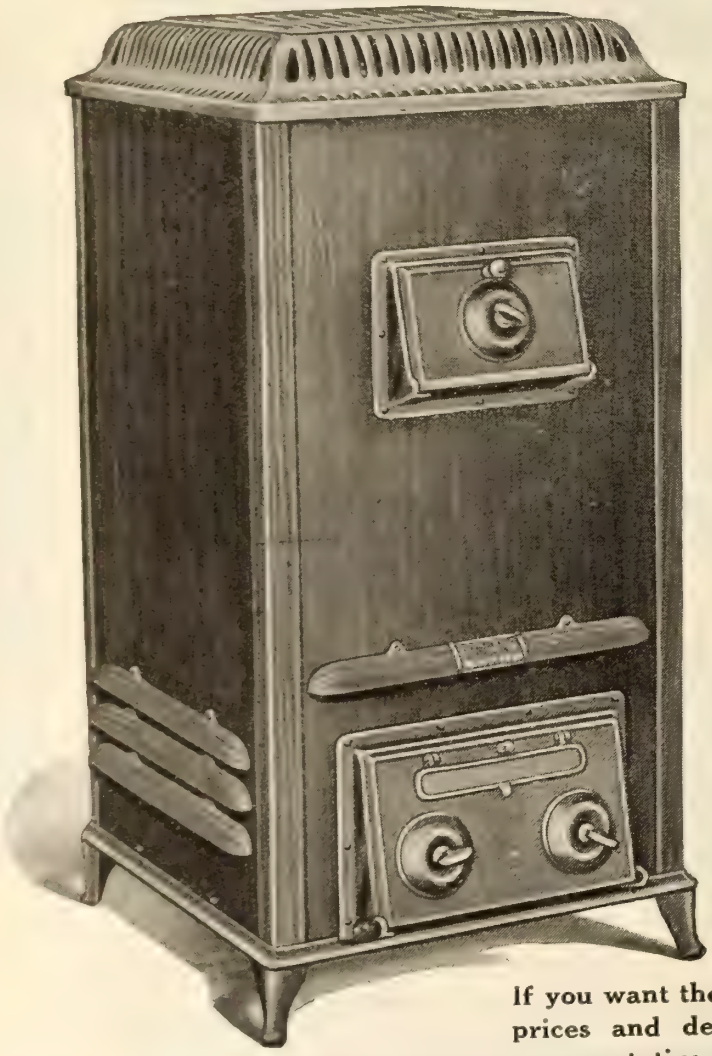
TRADE B.O.T. MARK

Of Quality

SOUVENIR SUPERHEATER

THE MOST MARVELLOUS ACHIEVEMENT OF STOVE BUILDING IN THE LAST FIFTY YEARS

LOOKS LIKE A MAHOGANY CABINET BUT IT'S A REAL FURNACE--CAN BE PLACED IN BEST ROOM



WHO'S GOING TO HANDLE IT IN YOUR TOWN— YOU OR YOUR COMPETITOR?

We are only going to appoint one agent in each town—so if you are to be the lucky dealer you should waste no time. The SOUVENIR SUPERHEATER is the only thing of its kind in Canada. It's entirely new—the latest system of heating—it sells itself and affords real good profit.

There's no doubt about the rushing business that's going to be done by the dealer who handles the new SOUVENIR SUPERHEATER. And remember, there will only be one agent in your town. Some dealer in your town is going to get the agency and that someone is going to make a lot of money, too.

If you order one of these heaters now and display it in your store you will develop many prospects that will result in sales next fall. And we'll help you get the orders.

We will mail attractive, descriptive folders to your customers with your name and address imprinted on them. We shall be advertising the SOUVENIR SUPERHEATER extensively too.

If you want the agency in your town write us at once for prices and descriptive circular or ask us to send a representative to see you.

THE HAMILTON STOVE & HEATER CO., LTD., - HAMILTON, ONT.

Successors to GURNEY TILDEN CO., Ltd.

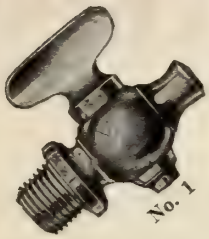
Representatives :

J. E. Maranda,
Quebec Traveling Representative, St. Hilaire, Que.

Winnipeg Representative :
134 1-2 Higgins Ave., Winnipeg, Man.

Vancouver Representative :
1073 Hamilton St., Vancouver, B.C.

Steam Specials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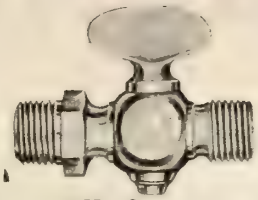
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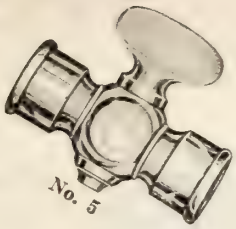
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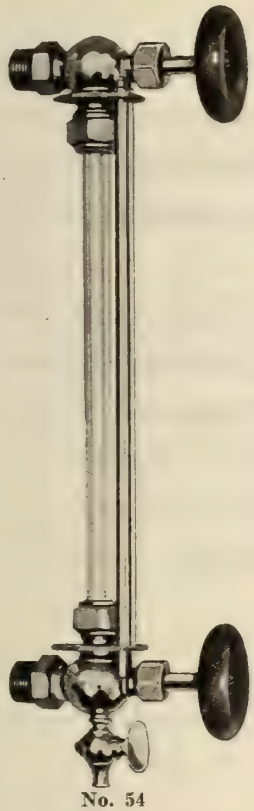
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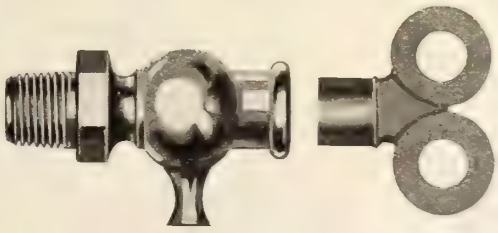
WE MANUFACTURE,
And supply promptly,
FROM STOCK

AIR COCKS—All sizes and styles.
AIR VALVES—Five designs.
STEAM GAUGE COCKS—Plain and with Union.
COMPRESSION GAUGE COCKS—Iron and wood wheel with and without S.B.
CYLINDER COCKS—Long and Short Shank.
WATER GAUGES—Five styles.
EXPANSION TANK MOUNTINGS—One style.
STEAM COCKS—Standard.

No. 52

No. 43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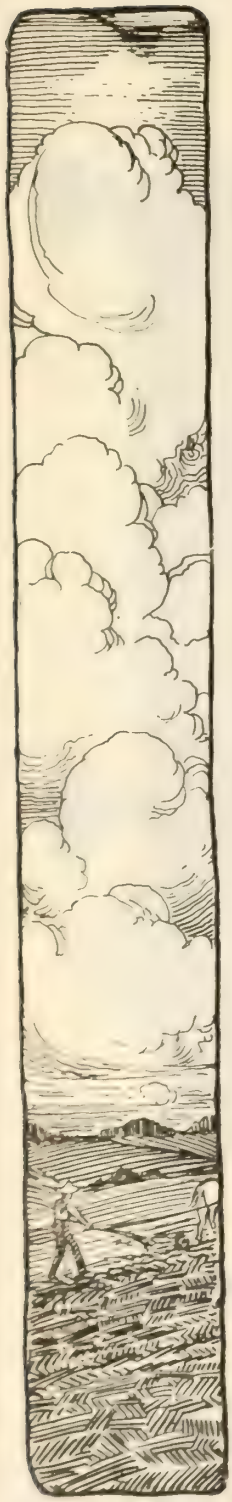
The Wallaceburg Brass & Iron Manufacturing Co., Limited
WALLACEBURG, ONT.

TORONTO:
Mr. L. N. Vanstone, 10 Wellington St. East
Telephone: Main 2355

MONTREAL:
G. M. Price, 10 Victoria St.
Telephone: Uptown 945

WINNIPEG:
Moncrieff & Endress, Ltd., Galt Bldg.
Telephone: A 9135

Time Flies—

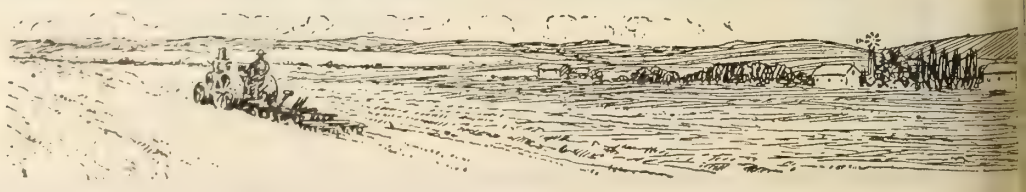


Rural depopulation has been a national problem for many years. The farm is--or was--decidedly unpopular with the farmers' children.

The attractions of city life; the home conveniences; the modern comforts--were powerful lures and drew thousands of the younger generation city-ward.

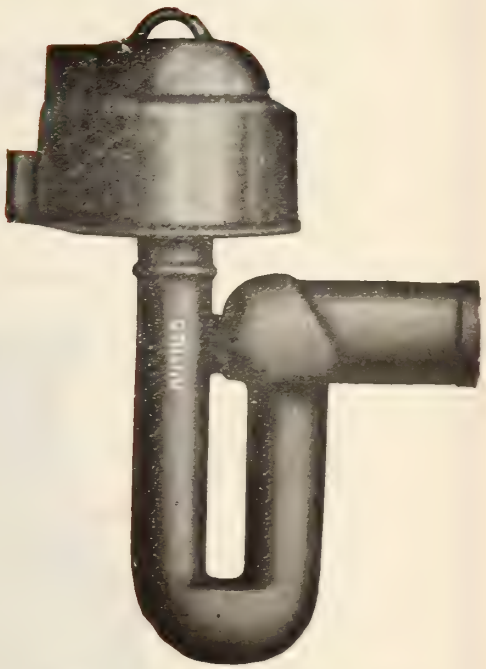
But time flies: everything changes. Today the majority of farmers, in Ontario at least, own cars. Telephone services are everywhere. There is an insistent cry for the immediate extension of electric power to the country districts. Farm power plants are meeting with a steadily growing demand.

Old fashioned farm sanitation has no friends. The agricultural press constantly agitates for modern up-to-date conveniences on the farm. Provincial health authorities publish statistics to show that Typhoid death rates are higher on the farm than in the city, owing to poor sanitation.



Everything Changes

Farm homes will be modernised--and in a comparatively few years. Aggressive plumbers can reap good profits in rural business. For the farmer is actually waiting to be sold. And one sale in a community means a regular chain of repeat business.



The Anthes Syphon is the heart of the disposal system—has no moving parts, seams or points. Built on natural principles — and operates as surely and efficiently as Nature's laws.

Anthes Foundry

Limited

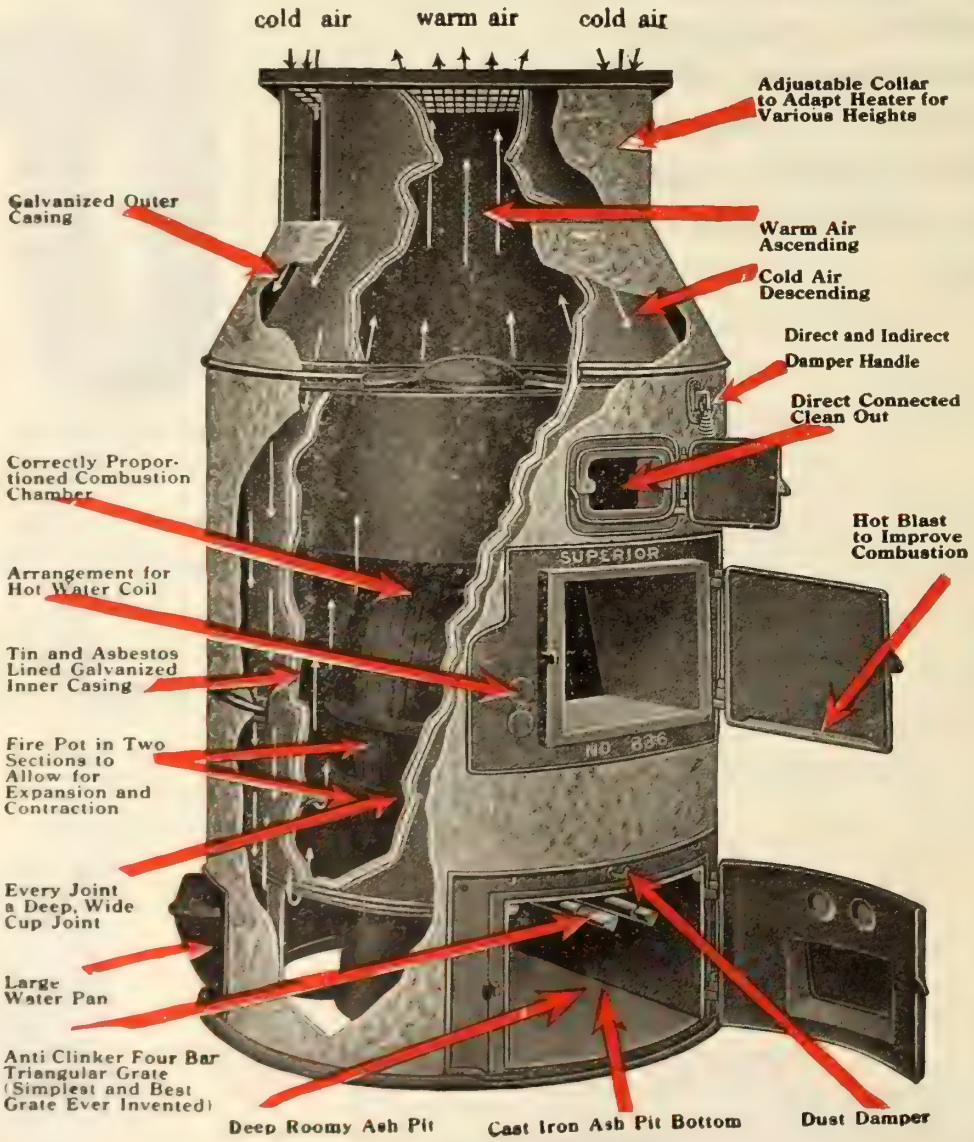
Toronto and Winnipeg

Manufacturers of

Cast Iron Soil Pipe and Fittings

Why You'll Make Big Furnace

The "PILOT" Superior Pipeless Furnace


cold air
warm air
cold air
Adjustable Collar to Adapt Heater for Various Heights
Galvanized Outer Casing
Warm Air Ascending
Cold Air Descending
Direct and Indirect Damper Handle
Direct Connected Clean Out
Correctly Proportioned Combustion Chamber
Hot Blast to Improve Combustion
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Tin and Asbestos Lined Galvanized Inner Casing
Fire Pot in Two Sections to Allow for Expansion and Contraction
Every Joint a Deep, Wide Cup Joint
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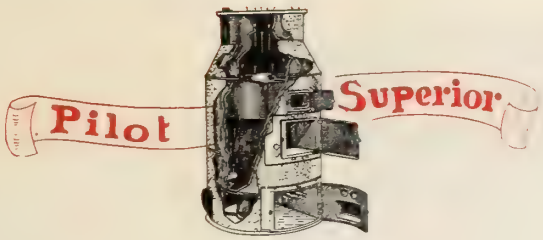
Anti Clinker Four Bar Triangular Grate (Simplest and Best Grate Ever Invented)
Deep Roomy Ash Pit
Cast Iron Ash Pit Bottom
Dust Damper
SUPERIOR
NO 836

Money on Pipeless Installations in 1922



The "Own Your Own Home" idea is gaining strength daily. The humblest workman, providing he is thrifty, can now build a modest residence, and they're doing it daily by the thousand.

Economy must be rigidly carried out, however, and every dollar must be spent on actual necessities only, with the assurance that these are being purchased at the lowest possible cost. Before the days of the pipeless furnace the home builder with a limited amount of money would have had to be content with the kitchen range, supplemented with a Quebec heater.

But the pipeless furnace has changed all that. Now this efficient heating unit may be purchased at a small cost with every assurance that it will keep the home warm and cosy in the coldest weather.

Is it any wonder that thousands of small home builders are choosing the pipeless as the heating unit most adapted to their purse?

There is also little wonder that the "Pilot Superior" is the ultimate choice of the majority because of its many splendid and exclusive features.

Dealers like to sell the "Pilot" because there is a good profit to be made on every sale and, because of its popularity with the public, a large turnover is assured.

If you're not handling the "Pilot" you're not making the most of your furnace sales.

Write Today for Territory.

The Hall Zryd Foundry Co., Limited

Manufacturers of Pilot Stoves, Ranges and Furnaces

Hespeler - Ontario

Western Branch: Post Office Box 687, Winnipeg, Manitoba

SIMPLICITY ECON

The Burrow, Stewart & Milne "Jewel" is simple in construction. There are no pipes to absorb heat and retard air currents. It is easy to install—easily looked after.

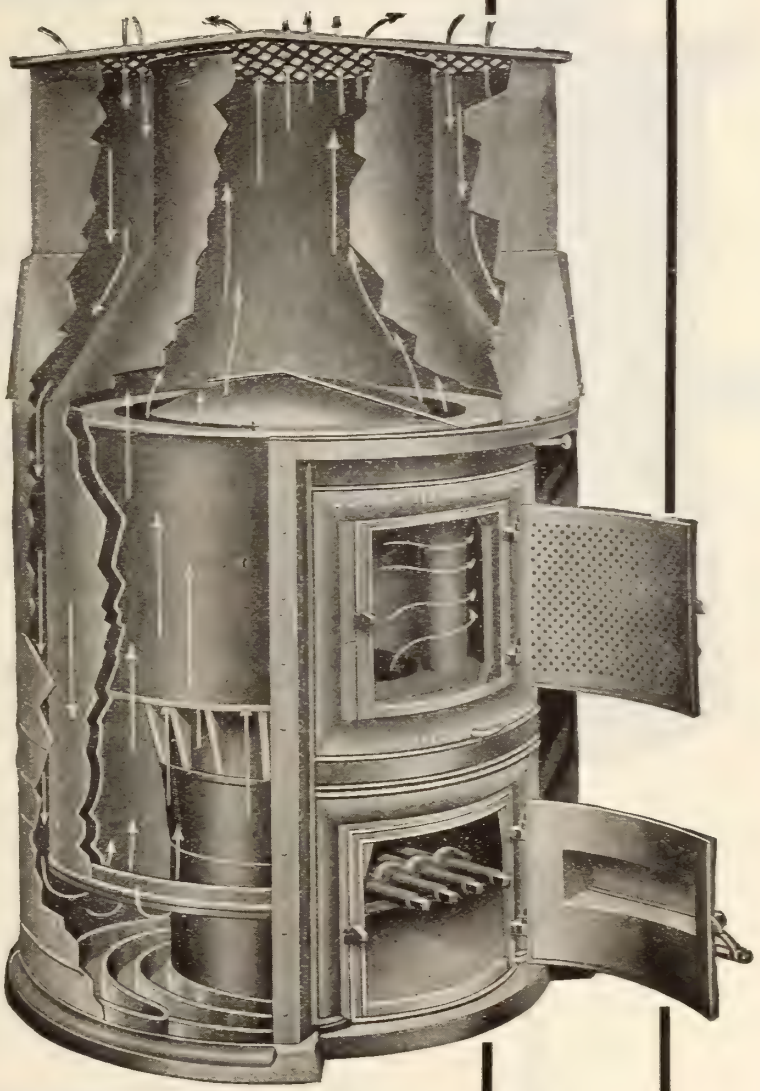
The Jewel is efficient, none of the heat is wasted in heating cellar space; none is dissipated in pipe transmission. Delivers fresh, healthful heat to the whole house.

The Jewel is economical. Users claim it saves from 1-6 to 1-4 on fuel bills.

BURROW, STEWART

OMY EFFICIENCY

To the dealer the Jewel means profits, fair satisfactory profits on first sales of course but bigger profits later from business created by actual user recommendations.



Manufactured by

The Burrow, Stewart & Milne Co., Limited

HAMILTON - ONTARIO

BRANCHES: Toronto, Winnipeg, Montreal

and MILNE'S JEWEL

Your Daisy Owners

Nothing is so convincing in the sale of any commodity as a strong recommendation from an actual user of that commodity,—from the man who has had one for some time—who knows all about it—just what it will do.

Over 60,000 Daisy Hot Water Boilers are now giving perfect satisfaction over the whole Dominion. Repeat sales are certain —It pays to concentrate on the "Daisy."

Makes Warm Friends Everywhere

Will Sell For You

Many of the most successful heating contractors let their "Daisy" owners sell for them—by phone. The prospect's interest has been aroused: a few short telephone conversations between satisfied owners and your prospects will close many profitable sales.

The wise contractor knows the telephone numbers of his best satisfied users. He never lacks convincing sales-points. It pays—try it.

Warden King
LIMITED

Montreal, Quebec

Branch Office: **136 Simcoe St., Toronto**

PIPE FITTINGS

that give Real Service

In connection with your work this year see that these reliable cast iron pipe fittings are used. Made with iron of high tensile strength and correct tappings.

Our malleable fittings are made of Air Furnace Refined Iron, reamed and tapped to gauge, with perfect threads. We can supply both screwed and flange fittings, either black or galvanized.

We are equipped to make the general run of malleable and grey iron castings for machinery manufacturers, agricultural implements, automobiles and specialties.

We take pride in the quality of Service these I.M. Pipe Fittings give.

International Malleable Iron Company, Limited

GUELPH, ONTARIO

Representatives:

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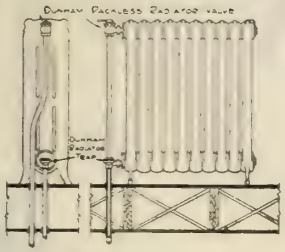
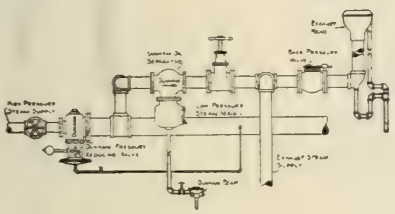
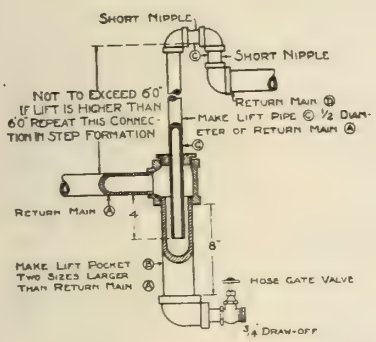
WINNIPEG, MAN.—Messrs. Harry F. Moulden & Son, Confederation Life Bldg.
ST. JOHN, N.B.—Messrs. H. G. Rogers, Limited, 147 Prince William St.
HALIFAX, N.S.—Mr. Geo. D. Hatfield, Bedford Chambers.

*No. 10

DUNHAM VACUUM HEATING






SHORT NIPPLE
SHORT NIPPLE
NOT TO EXCEED 60"
IF LIFT IS HIGHER THAN
60" REPEAT THIS CONNECTION IN STEP FORMATION
RETURN MAIN B
MAKE LIFT PIPE C ½ DIAMETER OF RETURN MAIN A
RETURN MAIN A
4"
8"
MAKE LIFT POCKET B TWO SIZES LARGER THAN RETURN MAIN A
HOSE GATE VALVE
¾ DRAW-OFF

THE Dunham Trap was first applied to Vacuum Steam Heating in 1903. Its application at that time was confined almost entirely to Vacuum Heating. In later years it has been very widely applied to vapor and gravity systems of heating.

The Vacuum Heating System, however, retains all of its former advantages of quick and noiseless circulation, smaller pipe sizes for supply and return mains, and today is the leading method of economical heating in large buildings, industrial plants, etc.

Where exhaust steam is available, the steam can be circulated through the entire piping system with but very little, if any, back pressure on the engines.

To remove the oil from the exhaust, all steam from engines, pumps, etc., is carried through an Oil Separator, and the removal of the oil from the steam admits of the using of the hot condensate from the heating system for feeding the boiler, with considerable saving over the use of cold water.

When exhaust steam is insufficient for the heating, then the supply is supplemented by live steam automatically through proper size of Reducing Pressure Valve. The reducing Valve responds automatically to the varying requirements, as when the engines are closed down, all steam is supplied by the Reducing Pressure Valve.

The Vacuum Heating System is particularly applicable to a group of buildings where it becomes necessary to raise the condensate in return mains. This is best accomplished by means of a "Lift" built up from standard fittings as illustrated. Return mains should always be graded toward the pocket of the "Lift."

Complete data on request.

**This is the tenth of a series of talks on steam heating, appearing monthly in this magazine.*

You will find them all very interesting and of help in your daily work.

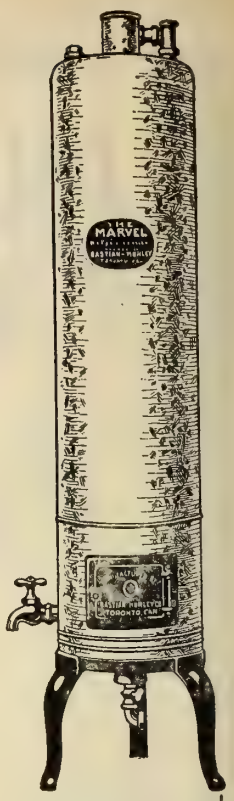
The DUNHAM REG TRADE-MARK HEATING SERVICE

(Made in Canada)

C. A. DUNHAM CO., Limited, TORONTO, ONT.

HALIFAX VANCOUVER WINNIPEG OTTAWA MONTREAL CALGARY

London: 18 St. Thomas Street, S. E. 1.



SELL THE IDEA

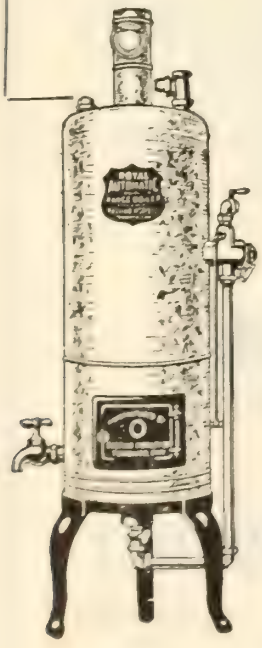
Hot Water QUICK

The most successful dealers are, most frequently, those who sell the idea—hot water quick.

The picture of water available at all times, without a minute's delay; the pointing out how heat-waste is eliminated; the demonstration of the mechanical features that make the heater lime-proof, free from sediment, silent and odorless.

—are just the outstanding steps on the way to more profitable and frequent sales.

Low costs; large discounts; easy installation. Sold only by or through plumbers. Write for full information—now.



BASTIAN-MORLEY LIMITED

195 Victoria St., TORONTO

BASTIAN-MORLEY

Bill Jenkins figured

BILL JENKINS figured he
KNEW ALL about the Plumbing business
HE OUGHT to—hadn't he been at it
FOR TWENTY years and never made
A CENT?
BILL KNEW it wasn't possible to
MAKE MONEY in the plumbing business
NOT THAT work wasn't plentiful
BILL GOT lots of jobs
ALL RIGHT but he just didn't
MAKE ANY money on them
AND NOT that he cut
PRICES. HE never cut prices. He
DIDN'T BELIEVE in cutting prices.
HE THOUGHT they gave him contracts
BECAUSE THEY liked him.
ONE DAY Sid Perkins who
KEPT A shop over on the next street
CAME AROUND to see Bill and said
"SAY, BILL, how'n Sam Hill did you figure
ON THAT school job?" Bill said.
"SAME AS I always do, why?"
SID SAID: "Well, I knew you'd get
THE JOB but just for curiosity I
FIGURED COST plus 5%—and you got
THE CONTRACT by quoting 5% below me.
GOOD DAY Bill."
NOW YOU know why Bill didn't
MAKE ANY money—he
DIDN'T KNOW his costs.
THE MORAL is, of course,
KNOW YOUR costs.
LET ALLPRISER be your price clerk.
K. B. Allison, 4 Irwin Ave.
Toronto.

BEAVER BRAND
Porcelain Enamel Ware

—*Your Guarantee of Quality*—

Beaver Brand Enamelware, by its ability to meet the highest demands for service under all conditions, has established itself in the confidence of the public to such an extent that each month witnesses an ever-increasing demand for products of Beaver manufacture.

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71 Brown St., Toronto

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OSHAWA, CAN.

MANUFACTURERS OF

"DIAMOND" PIPE FITTINGS

SANITARY ENGINEER
PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907 PUBLISHED TWICE MONTHLY

Vol. XVI. PUBLICATION OFFICE: TORONTO, JUNE 1, 1922 No. 11

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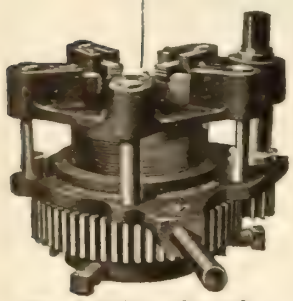

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Ask us regarding our new prices of these effective tools. Range ⅛" to 12".

All sizes threaded at one cut. Dies open out as the tool advances on the thread so that the proper taper is made. All friction on the pipe is relieved.

You'll find these machines beautifully designed. There are no complicated contrivances to get out of order. Operation is easy, smooth, rapid and accurate.

One man does the work of two. F.o.b. Hespeler. Cash with order.

Leading supply houses will sell you these tools at same prices

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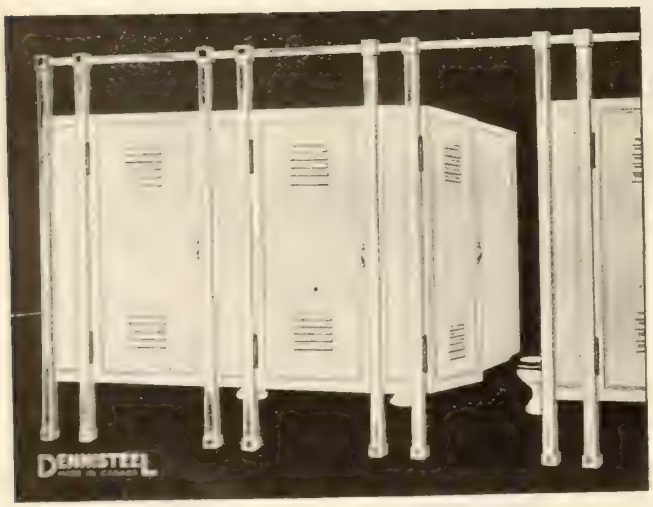
Sanitary Engineer



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Made in Canada

Lavatory Compartments

"Hygienic - Fireproof - Non-markable"

The school board and heads of business concerns, that insist on this equipment, are falling in line with the laws of public health.

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Established 1907

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Sanitary Engineer
Plumber and Steamfitter of Canada

Published First and Fifteenth of Month

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Important Changes in Taxes and Tariff

Sales Tax Increased to Total of 4½% on Transaction From Manufacturer to Jobber to Final Distributor and 6% on Imported Goods—Tinsmiths Relieved of Collecting Sales Tax—Tariff Reduced on Wrought Iron Tubing, Enamelware, Tools, etc.

EDITOR'S Note:—This year's Budget just presented to Parliament by the Minister of Finance contains many changes of interest and importance to sanitary and heating engineers, tinsmiths, etc. As much confusion has resulted in past years from members of the craft being insufficiently acquainted with the taxation and tariff changes made from time to time a close study of the changes outlined herewith should be made.

One of the most important changes is that of increasing the sales tax by 50 per cent. Formerly the tax on the sale by the manufacturer selling to the jobber was 1½ per cent. and on the sale by the jobber to the retailer 1½ per cent. making a total of 3 per cent. The new total tax will be 4½ or 2¼ per cent. on each of the two transactions. Formerly the tax on the sale of imported goods by the manufacturer to the jobber was 2 per cent. and now it is 3 per cent. The same applies on the sale from the jobber to the retailer making a total of 6 per cent. sales tax collected on imported goods before they reach the retailer. Under last year's Sales Tax the amount of $72,000,000 was secured.

Prefer Straight Tax of 5 Per Cent.

Early comment on the sales tax changes indicates that some wholesalers object to the difficulty of figuring the odd percentage of tax, they preferring to have it a straight 5 per cent. than the 4½ per cent. which will now be collected. A number of plumbers interviewed expressed satisfaction with the principle of the sales tax, and were pleased that there had been no revival of any form of the luxury tax.

Reviewing the Budget speech generally, it is evident that there are reductions in duties on 50 articles, these varying from 12½ per cent. to 2½ per cent. There is only one increase, that of tobacco products. One of the outstanding features is the increase in the British preferential tariff on many articles giving some advantage to other parts of the British Empire on such articles as tools, wrought iron tubing, enameled ware. There are reductions in the general tariff on 16 articles.

In cancelling the Marking Act, Valuation of Goods Act and the Depreciated Currency Act the Minister of Finance explained that there had been much deception under these, particularly that dealing with depreciated currency and that they did not accomplish the purpose for which they were intended. He stated that much good Canadian money has found its way to Holland and other countries through which importation into Canada has been made of these articles which would have been chiefly affected by such legislation. Boards of trade have been urging for some time that the depreciated currency regulations should be abandoned. Critics point out that with the value of the German mark at one-third of one cent as against a pre-war value of 24 cents and no regulations other than a general tariff in the way, that Canada is open to a flood of German merchandise.

"The regulations have denied the Canadian merchant the opportunity of doing direct trade and in obliging him to pay tribute to somebody else," said Mr. Fielding in regard to the effect of the foregoing regulation.

What Stamp Tax Brings

In placing a tax of 5 per cent. on automobiles up to $1,200 and 10 per cent. over that amount the idea has been to collect this tax according to the buyer's ability to pay. Cheques will require a 2 cent stamp if for amounts up to $50 and an additional 2 cents taxation will be required on each additional $50. The total clearings of Canadian banks last year exceeded $16,000,000,000 on which basis the tax would be about $6,400,000. The majority of cheques are below $50 so that the new tax will fall chiefly on big business. In a deal involving a cheque of $10,000 for instance the stamp tax would be $4 under the new provision. Bankers express the opinion that the new tax will tend to discourage payment of bills by cheques. Telegrams and cables which have been paying tax of 1 cent will have to pay five cents, and a 5 per cent. tax on premiums paid on insurance to unlicensed companies will be collected.

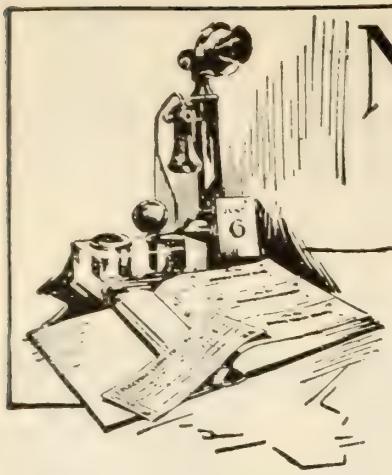
Wrought Iron Tubing

Among the tariff changes of interest to the plumbing trade is wrought iron tubing which, in sizes four inches and under in diameter is reduced 5 per cent. under both tariffs while tubing over four inches and not over ten inches is reduced 5 per cent. under the preferential tariff with Britain only. This latter means a reduction in the tariff with Britain on wrought iron tubing over four inches and under ten inches of from 20 per cent. to 15 per cent. As to the effect this may have on the source of Canada's trade may be judged by figures of imports for eleven months ending February, 1922, which show trade in wrought iron tubing 4 inches or less in diameter with the United Kingdom of $2,252 while that of the United States was $195,414. Approximately the same proportions also existed in the other sizes of tubing.

Tools

Tools are reduced 5 per cent. under

(Continued on page 29)



Novel Schemes That Have Helped Business

BRIEF reference will be made herewith to unique selling ideas which various Sanitary and Heating engineers are finding useful in developing business.

Not a Handyman To Rush Washers

W. G. BORLAND of West Montreal has the right idea in trying to discourage the idea that the plumber is but a handyman to put a washer on the tap or do some such other minor job. He believes in emphasizing the fact that the plumber is closely connected with the health authorities, that he is responsible for the maintenance of health in the community. Advertising in local papers and through the windows is held

to be most important as an aid in this teaching. A clean, neatly dressed window of plumbing equipment does more to alter the average person's regard for the plumber than anything. Enamelled ware lends itself to attractive display. Catchy cards in the window also help to achieve this end. Lines specially seasonable should be featured. Thus in the warm weather, feature baths, showers, need for sanitation, etc., whereas in the winter hot water heaters may be shown.

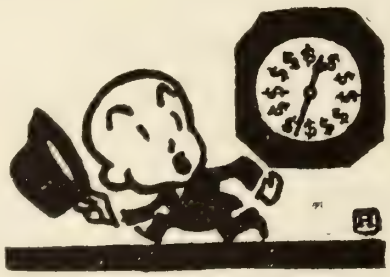
Doctor May Cure But Plumber Prevents

IN ORDER to put across the idea that the plumber is an important factor in the maintenance of health standards, one progressive engineer uses cards in his window displays with such wording as the following: "The doctor may cure, but the plumber prevents."—"Next to the doctor the plumber is the most important in the community in protecting your family's health."—"Sickness is often caused by faulty plumbing." Also other attractive cards dealing with various fixtures such for instance as;—"Hot? Buy a shower and be COOL. Only $20 complete." "Heat what you use and Use what you Heat—Instantaneous hot water with this heater."

Is Your Plumber a Robber?

IN connection with educational work done to better acquaint the public with

justice of plumbers' charges, a number of operators have run in their local newspapers under the heading "Is your plumber a robber?" an advertisement paid for partially by each one of them. The buying public needs to be educated to know what overhead expenses the plumber is under, but he should not show a separate amount on his invoices for "overhead." Let it be shown in some other way because no one likes to pay such expenses as that if they are cognizant of it. This advertisement listed the details of the firm's overhead expenses for one year in a shop doing a volume of business of $25,000. These included sundries, license fees, telephone, light, heat, power, water, stationery, trade papers, traveling expenses, office salaries, auto expenses, depreciation on vehicles, insurance, advertising and donations, dues, interest, legal expenses, taxes, miscellaneous store expenses, allowances and bad accounts, rent, damaged material, tools, workman's compensation. These fixed charg-



es or orperating costs are totalled which together with cost of labor and material make a certain amount. Deducted from the year's business of $25,000 will show a fair margin of profit. One group of plumbers who worked out this plan showed total cost of doing business of $22,727 thus indicating a net profit of $2,273 on a $25,000 volume of business.

Won't Invest at Inflated Prices

KNOWING that many people will not invest their money in something which they figure is still at inflated price levels, Ernest Conley, sanitary engineer of Sherbrooke, Quebec, takes every opportunity to indicate the extent to which plumbing and heating supplies have declined. He does this largely through his advertising, one of his recent ads reading:—

"Plumbing is a profession and should be regarded as such by everyone. The plumbers spend as much time and energy in perfecting themselves for their calling as any other group of professional men, but they receive a smaller compensation than any other profession.

"As farm products have decreased in price so have building materials. Al-

INVESTED MONEY TALKS

though some articles increased tremendously in price during the years of the war, plumbing and heating materials did not go sky-rocketing like a number of other building materials. Hence the percentage of drop need not be so large in order to reach the previous price level.

"When an article has increased a 100 per cent. in price a drop of 50 per cent. brings it back to the original price.

"Plumbing and heating materials constitute a very small part of the total building cost. In the average seven or eight room house where hot water is used the cost of plumbing and heating is only about eight or ten per cent. of the total cost. In other buildings it is less.

"Following are some of the reductions made in plumbing and heating materials since one year ago:—Soil pipe and fittings, 37 per cent.; Lead goods, 31 per cent; Brass radiator valves 30 per cent; Brass goods generally 25 per cent; Iron and malleable fittings 25 per cent; Iron pipe 16 per cent; enamelware, 15 per cent; radiation, 28 per cent; range boilers, 45 per cent; other goods, 15 per cent to 40 per cent.

"Respectfully submitted by the undersigned for the consideration of all fair minded citizens."

Change to Cash Basis Creates a Stir

A PLUMBER whose business suffered considerably from poor credit accounts states "for seven years I watched my business grow on the books, but the cash drawer and the bank balance didn't seem to grow. My banker always watched my account and it was hard for me to get credit, and yet I was giving long time credits to all of my customers.

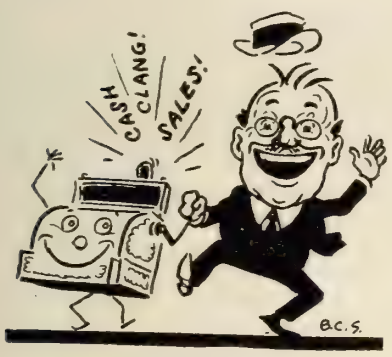
"It took me seven years to realize that the money I was earning by increasing my business was mostly in the pockets of my customers instead of in my own. I finally woke up to the fact that a balance on the books didn't mean anything. It was a balance in the bank that counted.

"I made a complete change in my business methods. To-day, three-fourths of my business is strictly cash, and except in rare instances the other fourth of my trade pays up every thirty days.

"Liberal credit has always been my policy and I couldn't revolutionize things in a minute by insisting that customers pay cash. So I offered 5 per cent. discount for cash on all purchases amounting one dollar or more. I offered a discount of 2 per cent. on all bills which were paid on or before the 10th of the month following purchase.

"On my statements and bills I had this notice printed:

"'When we borow money from the



bank we have to pay interest. When we sell goods to you on credit it is the same as loaning you that much money. We are extending this accommodation with the understanding that you will pay promptly. If you do not pay by the tenth of the month we will charge you interest at the rate of 6 per cent'.'

Be Your Own Plumber —Don't Be Stuck Up

A RATHER novel sale, in so far as the plumbing trade is concerned, was arranged by T. J. Minnes & Co., plumbers of Brantford, Ont. This sale took the form of special effort applied to small fittings such as taps, waste pipes, range boilers, etc., on the basis of purchasers being their own plumbers in so far as the installation of such fittings was concerned. In the publicity matter concerning the sale the phrase "Be Your Own Plumber" was prominent.

In discussing the results of the sale with a representative of Sanitary Engineer, Mr. Minnes stated that he had done an enormous amount of business in the lines enumerated and other similar goods. Terms with this firm are all strictly cash. Mr. Minnes admitted that he was a firm believer in cash business and that he is intending to practise it in future to an even greater extent in his business.

Mr. Minnes stated that while he might perhaps have done a bigger volume of business in this sale, had a credit business been done rather than strictly cash, yet the disadvantages of having accounts on the books with collections rather slow as at present, were thought to overweigh the advantages and the cash, business, though of lesser volume, to be more desirable. With collections slow credit accounts are frequently on the books for 90 days and this tying up of the plumber's capital is a serious drawback to the efficient methods needed to conduct business to-day.

Puts Force Behind Sales Ideas

A SANITARY engineer of London, Ont. is working out a plan for boosting sales of bathroom fixtures that is producing very satisfactory results. Whenever the firm is called upon to make an installation of bath room equipment, whether in a new residence or an old one, the opportunity is seized to try and sell bath room fixtures.

"We find that the great majority of people are interested immediately," said he to Sanitary Engineer. "Most of them had not thought of fixtures but when they are drawn to their attention they are glad to discuss the matter. They realize the value of suitable bath room fixtures and the service that they will give, and we usually find that home owners are appreciative of our having brought the matter to their attention. It seems to me this matter of selling bath room fixtures is one to which many men in the trade have been giving little or no attention, with the result that men in other trades have been cashing in on a nice business that rightfully belongs to sanitary engineers. We have found that it is a very easy matter to develop sales of fixtures and that they carry a margin of profit that makes the business worth going after. In the case of new homes we frequently get an order for all the fixtures required. In some cases people prefer to buy perhaps only one or two really good fixtures at the time and buy others from time to time. The point for the man in the trade to keep in mind though is that people are really interested in fixtures and that all he has to do to sell them is to talk about them."

Very often when bath room repairs are being made there is also an opportunity for selling fixtures and it is taken advantage of.

Takes Advantage of Opportunity

A WESTERN Ontario Sanitary engineer who emphasizes the necessity of keeping the display clean says, "This certainly is a big help in making sales. In a great many instances it is the women who really make the final decisions about fixtures. They like to pick them

up and examine them and it is certain that they regard a shining nickelled fixture or a spotlessly white one with a great deal more favor than they would a piece covered with dust or with the shine dulled. Keeping stock clean and presentable not only helps to sell it but it just naturally creates a good impression about our shop, and that is something that is valuable."

For the last two months the firm has been handling toilet paper, not alone for the profit it carries, but with a view of advertising the store.

"We have found our sales in the paper increasing steadily," said he, "ever since we put in our first window display. We believe that if we get people coming to the shop for paper they will get our firm name in their minds and come to us for other things and that is what is happening."

The firm keeps a pyramid of toilet paper in one end of its display window. Between this and the bathroom fixtures are shown various plumbing goods. This part of the display is changed regularly and seasonable lines featured as far as possible.

Get Off the Treadmill

A GROUP of St. John, N. B., sanitary engineers have helped achieve something in making what was formerly a slum street into a prominent business thoroughfare. This wonderful change was made in less than six months, owing to the aggressiveness of about thirty merchants, who have opened up an advertising campaign, on a co-operative basis, boosting their street by weekly full page advertising in one of the local newspapers. Brussels street, St. John, N. B., six months ago was a rough unpaved thoroughfare, and used only by teams compelled to go down it on business, the main traffic following the course of the paved streets. The city is just completing the paving of this street, and the residents, realizing the possibilities of increased traffic sought

to make the citizens forget the old slum street, so petitioned the city council to change the name from Brussels street to Prince Edward street. This change of name has been made, and now the residents are putting the street on the map. Some time ago the citizens of St. John were all made to sit up and take notice by a large flaring full page advertisement, announcing that Prince Edward street was the Hub of the city, and St. John's new commercial thoroughfare, the Eastern gateway of St. John.

Twenty-six merchants announced that "United we stand for co-operation, enterprise, progress and prosperity. We have faith in our street and our city." The committee in charge of this advertising campaign announce that it is to be carried on for a year, using a full page space each week, paid for by all merchants whose names appear. Buildings are being painted, stores are having new fronts put in, and the whole street is beginning to assume a spic-and-span appearance. Every resident is a booster for his street, and Prince Edward street is the talk of the town.

Announces Some Startling Statistics

A SANITARY engineer who believes in emphasizing the nature of his industry makes use of statistics like the

following, in the shape of window cards, newspaper ads, etc.;—

It has long been submitted by recognized authorities on the subject that the rate of infant mortality in a given district is regarded as the most reliable test of the sanitary conditions existing throughout that locality.

Investigations in this connection undertaken by Research Bureaus have established the following facts.

1. That in homes where water is piped into the house, the infant death rate is around 117.6 per thousand.

2. Where the water has to be carried into the house from outside the infant death rate is around 198.2.

3. That the infant death rate is 72.6 in homes where bath tubs are found. While it is more than double or practically 164.8 where there are no bath tubs.

4. In homes where water closets are installed, the infant death rate is 108.3, and in homes where there are only yard conveniences and no water closets the infant death rate is 169.3.

5. That in homes where city water is available the infant death rate is 132 per thousand and where city water is not available the death rate was 148.4 per thousand.

Studies His Prospects

SOME plumbers hesitate to make an outlay of any considerable sum of money for displays. F. J. Hogan of Montreal says an outlay of between four and five hundred dollars for window display will pay for itself inside of twelve months in a fair location. Mr. Hogan has an active plumbing and tinsmith es-

tablishment in his business and one of his display windows is constantly devoted to plumbing wares. Considering the plumbing contract work a very important end of his business, and firmly believing that by further advertising he could develop a much more extensive trade, a neat, clean and attractive window display is used to assist along these lines. Showing a bathroom, complete in every detail is the idea. With this plan in mind a commencement was made by having a tile floor covering the floor of the window on a level with the inside store. By closing in the window by a wooden partition the walls were formed, the inside of which were tiled about four feet all around, the rest of the way to the ceiling being finished in a high gloss white enamel. The ceiling underwent the same coatings, thus a pure white appearance was gained from top to bottom. The installing of bath tub, basin and closet was undertaken with as much care and precision as would have been the case in a private home, each placed in a most convenient position with taps, bibbs and traps perfectly placed.

The smaller fixtures, including the medicine chest, glass towel roller, glass tray, tumbler holder and toilet paper holder were screw nailed to their proper place, and to complete the arangement the display is illuminated at night by a dome fixture at the ceiling, and a side wall fixture, common to most bathrooms.

PLUMBERS' LEAGUE DATES

Below is the schedule of the Toronto Plumbing and Heating Supplies League for the present season. The schedule is divided into two sections, with the winners of these two series playing off for the title. All of these games are twilight fixtures, and will start at 6.30 p.m.

First Series

June 2—Jas. Morrison at Dominion Radiator.
5—D. S. H. E. at Standard Sanitary Co.
9—Jas. Morrison at Grinnell Co.
12—Standard Sanitary at Dominion Radiator.
16—D. S. H. E. at Jas. Morrison Co.

Second Series

19—D. S. H. E. at Grinnell Co.
23—Dominion Radiator at Jas. Morrison.
26—Grinnell at Standard Sanitary Co.
30—Jas. Morrison at D. S. H. E.
July 3—Dominion Radiator at D. S. H. E.
7—Jas. Morrison at Standard Sanitary Co.
10—Grinnell Co. at Dominion Radiator.
14—Standard Sanitary Co. at Jas. Morrison.
17—Dominion Radiator Co. at Standard Sanitary.
21—Grinnell Co. at D. S. H. E.
5—D. S. H. E. at Standard Sani-

Foundation of the Plumber's Success

Lies in Establishment of Reputation for Efficient and Durable Installations, Says Manufacturer—Average Sanitary and Heating Engineer Has Chance to Become First Class Salesman by Following up Prospects—Believes Plumbers Should Not Waste Time, Energy and Expense on Showrooms

THAT THE average sanitary and heating engineer has the opportunity of becoming a first class salesman, and that his efforts have every possible chance for success due to his personal connection with his customers, is the opinion of an Ontario manufacturer and wholesaler of plumbing equipment as expressed to Sanitary Engineer this week in discussing means by which the trade may stimulate business.

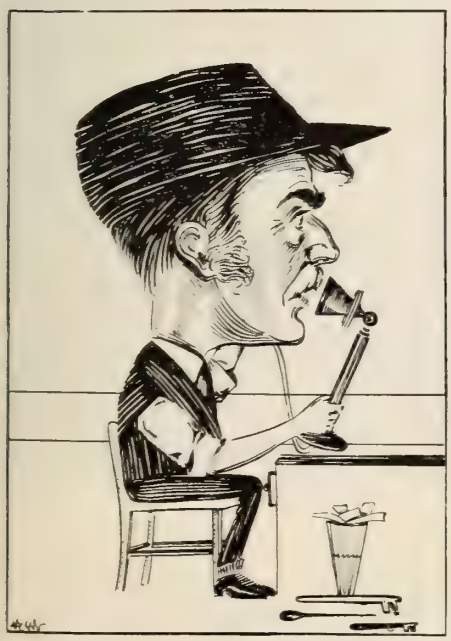
Referring to the influence of showrooms in connection with the sale of plumbing and heating goods, this manufacturer expressed similar opinion to that which started the discussion which has been carried on for some months past in Sanitary Engineer, to the effect that the average sanitary and heating engineer can devote his capital and energy better along other lines.

Heavy Cost of Showroom

"It costs $3,000 to $5,000 to operate the average plumber's showroom," said this manufacturer, "and it takes a great deal of valuable time attending to those who come to it, and to the arrangement of stock, cleaning up etc. This time the plumber could spend much more advantageously calling upon prospects. You must remember that plumbing goods are staple lines and there are very few specialties. To attempt to display such lines would be comparable to the grocer devoting his show window to the display of sugar. The results do not justify the expense involved unless it is necessary to educate the public concerning the composition of the goods involved.

"The plumber might far better open an office in a live district, instal someone who can intelligently answer enquiries and spend his time at his work or following up prospects, telephoning to his office at specified times during the day to find out what has transpired. In this way showroom expenses are eliminated, the high rent of a display shop in a prominent location is dispensed with and the plumber's time is being spent much more profitably in working up prospective business.

Keep Away From Side Issues



"The tendency when a showroom is being conducted and it has been found to be a little slow in attracting prospects is to take on the sale of washing machines, vacuum cleaners, etc., and then the identity of the plumbing shop is entirely lost and it might be closed up entirely. Do not overlook the fact that any of these side issue lines can be installed by any handyman but plumbing goods have to be installed by a plumber. It is around his ability to instal in a durable and sanitary manner the plumbing and heating requirements that the plumber's success or failure revolves. There has been a dangerous tendency of late for operators to take on the sale of many lines ordinarily outside the bounds of accepted plumbing and heating practice in order to try to offset the depression in business which in many cases is attributable to their own lack of aggressiveness.

When business is scarce the solution does not lie in taking other lines which have for years been recognized as the legitimate merchandise of other lines of trade and which are better fitted for the competition for available business in those lines than the plumber, but the solution lies in the sanitary and heating engineer's realization that the possibilities for his line of business have only been scratched and that aggressive methods will bring much of it 'across.'

Big Cost is in Installation

"The real cost of plumbing and heating fixtures is in their installation and therefore the importance of the showroom is considerably subordinated to the ability of the engineer to make a satisfactory installation. If a clean looking, competent engineer enters the home and acts in the capacity of an authority on subjects of sanitation and heating, he at once gains the respect of the owner and he commands more regard for his industry than has formerly existed. The average property owner's idea of the plumber is that he is a dirty individual who charges big bills and is more to be repelled than welcomed. This is the tendency which the plumber must overcome when he enters the home of his prospect and by close attention to these details he will find that he will be welcomed. Everyone likes a pleasant surprise, and the plumber who follows this role can work to advantage.

"The plumber of the type described comes into the home and by the use of some selling ability, catalogs, etc., describes in detail the appearances and convenience of the various appliances. If he has any selling ability whatever he can put the sale across by that means better than by showing the line in the showroom because in either case the prospect must use his imagination to some extent. The cry is raised that showing the fixtures guards against a tendency to buy the cheapest grade. In this connection it is interesting to note that not five per cent. of those who buy plumbing installations in the cities, buy the cheapest grades. Generally when they have made up their mind to instal a set of fixtures they have decided to make a good job of it while they are at it, and they buy at least a medium grade set.

Personal Ability Counts

"When the plumber has satisfied his prospect concerning the nature of the fixtures, his big selling point then is his personal ability. The customer can purchase the plumbing fixtures anywhere, but they cannot purchase the same ability to make a good installation anywhere. That is the plumber's stamp of individuality and that is what he should play up to the limit. He would convince the customer that his installation is most durable, convenient and neat, and if this conviction is borne out in practice he will always be assured the lion's share of that customer's business.

"Extensive use should be made of advertising and literature supplied by manufacturers. A mistake commonly made in connection with local newspaper advertising is for the plumber to run an ad and then sit down and wait for business. He frequently overlooks the fact that it is only by consistent publicity that results can be secured. Some regular appropriation should be made for the purpose and a schedule mapped out with arrangements made for change of 'copy.' A mailing list of prospects should be started and added to at every opportunity, this to be used both for personal calls and also for the distribution of literature. For the city dealer this is not so difficult, but the rural plumber will have to depend chiefly upon local gatherings at various functions to secure the distribution of literature.

"In regard to competition from hardware stores and other channels of distribution, the plumber must realize that in wanting the exclusive distribution of plumbing and heating goods he must demonstrate to the manufacturers and supply firms that he is prepared to accept the responsibility that goes with it. Following out the plans outlined will indicate to manufacturers that the plumber is on the right track and is disposed to work for business in his line rather than trying to divert his attention to other lines not identified with the industry."

SALIENT POINTS RECOMMENDED IN THIS ARTICLE

Plumbers should develop their unique opportunity for efficient salesmanship.

Heavy cost, waste of time, tie up of capital in conducting showrooms should be eliminated.

An office in a progressive district will bring better returns.

If showroom makes necessary stocking of washing machines, vacuum cleaners, etc., the business is doomed.

Plumber's success rests on his ability to handle installation work, the only thing to which his trade gives him exclusion.

Chief cost is in installation of fixtures therefore importance of showroom is minimized.

Premise report cards all right for master plumber but journeymen should not snoop around houses in which they are working

Only 25 per cent. of existing buildings are properly equipped with plumbing.

Not 25 per cent. of buyers want cheap grades of plumbing fixtures.

Plumbers Killed Their Own Game

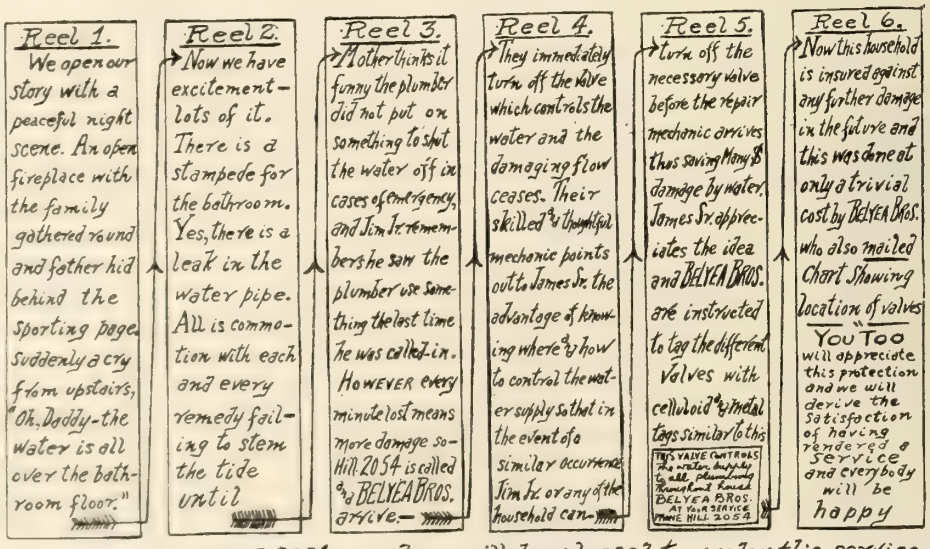
Dealing with the conduct of showrooms by supply firms, it was pointed out that when a protective margin of 25 per cent. was allowed the plumber in connection with prices quoted those visiting the supply firm's showroom, the prospect would frequently go to a plumber and ask a price on the same fixture. Desirous of clinching the business plumbers approached in this manner would frequently cut the margin allowed and quote a price on the fixture

(Continued on page 60)

How to Avert a Calamity

Being a Word Picture in Six Reels

By Experience


Reel 1.
We open our story with a peaceful night scene. An open fireplace with the family gathered round and father hid behind the Sporting page. Suddenly a cry from upstairs, "Oh, Daddy-the water is all over the bathroom floor."
Reel 2.
Now we have excitement-lots of it. There is a stampede for the bathroom. Yes, there is a leak in the water pipe. All is commotion with each and every remedy failing to stem the tide until
Reel 3.
Mother thinks it funny the plumber did not put on something to shut the water off in cases of emergency, and Jim Jr. remembers he saw the plumber use something the last time he was called in. HOWEVER every minute lost means more damage so-Hill 2054 is called & "BELYEA BROS. arrive.-
Reel 4.
They immediately turn off the valve which controls the water and the damaging flow ceases. Their skilled & thoughtful mechanic points out to James Jr. the advantage of knowing where & how to control the water supply so that in the event of a similar occurrence Jim Jr. or any of the household can-
Reel 5.
turn off the necessary valve before the repair mechanic arrives thus saving Many $ damage by water. James Sr. appreciates the idea and BELYEA BROS. are instructed to tag the different Valves with celluloid & metal tags similar to this
THIS VALVE CONTROLS the water supply to all plumbing fixtures found BELYEA BROS. AT YOUR SERVICE PHONE HILL 2054
Reel 6.
Now this household is insured against any further damage in the future and this was done at only a trivial cost by BELYEA BROS. who also mailed Chart Showing location of valves
"YOU TOO will appreciate this protection and we will derive the Satisfaction of having rendered a Service and everybody will be happy
Just call HILLCREST 2054- and we will be pleased to render this service

The above was used in a folder by Belyea Bros. sanitary and heating engineers, Toronto. The novelty of the idea appealed to many and it served to impress upon readers the importance of little services which this firm give. This was distributed throughout the district and was said to be productive of good results.

Shows What Merchandising of Plumbing And Heating Equipment Really Means

As Many as Fourteen People in the Store One Evening Discussing Various Equipment on Display, says Ross Belyea, Toronto—Bringing About a Higher Appreciation of Importance of Sanitary Engineers

WITH FULL belief in the value of merchandising plumbing and heating equipment, Ross Belyea opened a new store on north Bathurst street, Toronto, just long enough ago to be able now to realize that the methods employed have been of great assistance in developing business. A glance at the illustrations which appear in this article showing the store exterior and interior and some of the mediums of publicity used indicates readily that very different methods are followed than are employed in the majority of plumbing shops.

The Belyea store is located on a business street in the midst of splendid residential districts bordering on the city limits. In this location Mr. Belyea has an opportunity of developing not only city and business trade but also the county trade and even rural trade from farther out. His idea has been to make his store and displays so attractive that it stands out in comparison with other retail stores adjoining. The innovation has proved successful and many interested people stop in front of the windows every day and look over the suggested bathroom, laundry, kitchen or other installations. The store interior is also kept attractive and draws many such prospects in to look over the stock kept on display. The exterior and interior appearance from a distance reminds one more of a high class confectionery store than a plumbing shop, and the innovation has produced the desired result. Mr. Belyea has found that many prospects can be sold plumbing and heating equipment from being allowed to examine such equipment and be told of the value of it in the home.

Cashes in Long Time After

Each night, particularly on Saturday, after the store was opened numerous strollers along the street were taken with the appearance of the store and stopped to "look it over." Even yet Mr. Belyea is cashing in on business from some of those early prospects whose first knowledge that there was such a firm as this came from the initial interest aroused by the unusual sight of such an attractive plumbing shop.

Starting with that idea in mind, Mr. Belyea has done everything possible to keep his name before prospects in the vicinity as the logical place to turn for this line of work.

"This store reflects the underlying idea which all plumbers should work toward in order to raise the status of this industry in the eyes of the public," said Mr. Belyea in discussing the matter with Sanitary Engineer. "'People are attracted by the showroom and it gives the plumber an opportunity to exercise his selling ability on prospects whose attention is concentrated and where there is plenty of equipment to show. As an indication of how the idea has taken on, it is not unusual for us to have as many as fourteen callers in one night. We make good use of the windows by linking up with current affairs such as Easter, Christmas, etc., and we don't overlook attracting the kiddies because they represent the coming generation and it is important to educate them along the

Once inside the Ross Belyea store the prospect is faced with a wide range of plumbing and heating equipment from which to select what suits his particular taste. This interior view shows a pedestal and a bath with white chairs in the centre, with sinks, medicine cabinets, toilets, mirrors, etc., down one side, and laundry tubs, etc., along the other. At the rear is the office where facilities are provided for discussing with prospects their requirements and making estimates.

lines of a higher appreciation of the plumber."

Develops Specialty Lines

By the use of his showroom Mr. Belyea has been able to develop trade in a number of more or less specialty lines in addition to the staples. For instance he showed a special oil burning heater which was both economical on fuel and clean in operation. Within the first few days four or five of these were purchased and installed largely as a result of being displayed and prospects's attention being drawn to them. The same applied to a special fuel saving boiler jacket in which much interest was taken.

Being located near the rural districts, water supply systems and rural sewage disposal equipment is also dealt with. To get this business Mr. Belyea has secured by gradual development a splendid list of live prospects whom he is following up constantly with letters and calls. When he has a prospect fairly well worked up he takes a demonstrating outfit and shows them exactly what it will do on their property.

Premise Report Card

Use is made of premise report cards for the securing of prospects and this plan has been found to work admirably. On the heading of the card is a note to employees stating that the success of

ROSS BELYEA

Domestic Sanitary and Heating Engineer,
1375 Bathurst St. Toronto.

Dear Sir:—

Obviously the proper place to buy plumbing and heating material is from the plumbing and heating contractor because there is a service which is necessary for the installation and incidently to the upkeep which can only be secured there.

For this reason we have recently opened a well planned Show Room for the purpose of meeting the Plumbing and Heating requirements for this high-class residential district.

We cordially invite you to call and see our display of modern plumbing fixtures. You are certain to find it interesting. You will be pleased to learn how inexpensively your home can be equipped with improvements of this sort.

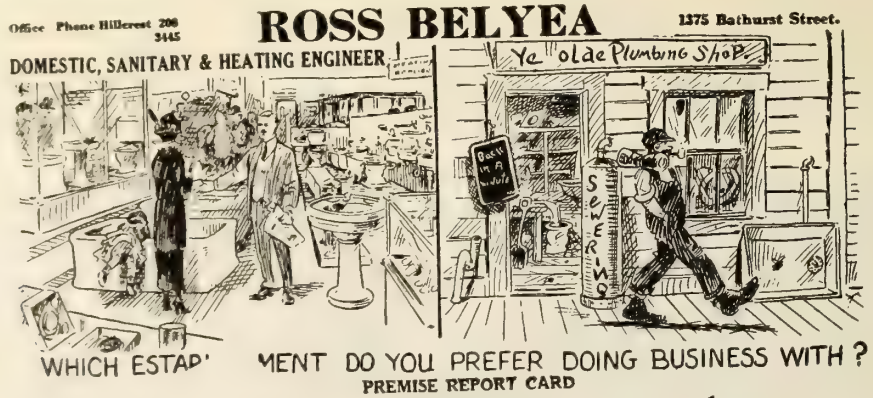
In your consideration of any of these lines do not hesitate to take advantage of our knowledge and experience. We will be glad to advise you on any subject in connection with the Plumbing or Heating equipment of your home.

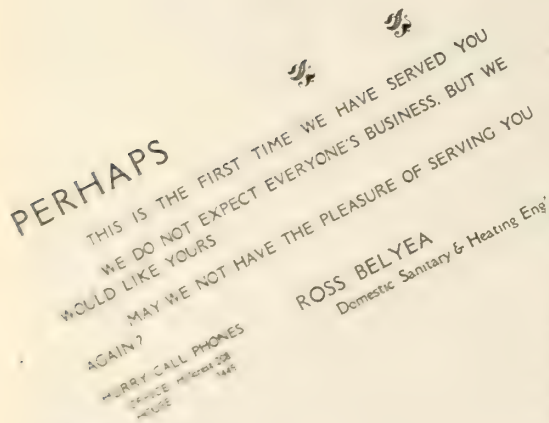
A phone call or postcard will bring our representative promptly.

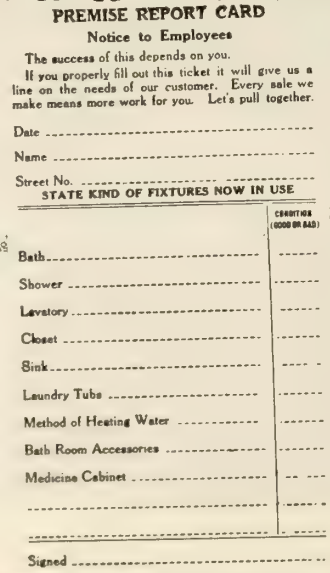
Yours for better sanitation,

ROSS BELYEA.

(Letter sent out to list of prospects).


Office Phone Hillcrest 208 3445
ROSS BELYEA
1375 Bathurst Street.
DOMESTIC, SANITARY & HEATING ENGINEER
Ye olde Plumbing Shop
SEWERING
WHICH ESTAB MENT DO YOU PREFER DOING BUSINESS WITH?


PERHAPS
THIS IS THE FIRST TIME WE HAVE SERVED YOU
WE DO NOT EXPECT EVERYONE'S BUSINESS, BUT WE
WOULD LIKE YOURS
MAY WE NOT HAVE THE PLEASURE OF SERVING YOU
AGAIN?
ROSS BELYEA
Domestic Sanitary & Heating Engr
HURRY CALL PHONES


PREMISE REPORT CARD
Notice to Employees
The success of this depends on you.
If you properly fill out this ticket it will give us a line on the needs of our customer. Every sale we make means more work for you. Let's pull together.
Date
Name
Street No.
STATE KIND OF FIXTURES NOW IN USE
CONDITION (GOOD OR BAD)
Bath
Shower
Lavatory
Closet
Sink
Laundry Tube
Method of Heating Water
Bath Room Accessories
Medicine Cabinet
Signed

ANNOUNCEMENT
WE HAVE OPENED A SELECT SHOWROOM AND OFFICE AT 1375 BATHURST STREET, WHERE AN EFFICIENT STAFF ARE PREPARED TO ESTIMATE ON YOUR PLUMBING AND HEATING REQUIREMENTS, BACKED BY TWELVE YEARS OF CONTRACTING EXPERIENCE.
WHEN YOU WANT SERVICE PHONE HILL. 208
ROSS BELYEA

Here are shown a number of the cards, blotters, etc., used by Ross Belyea to keep his name before prospects in the local district. Above is a blotter with an illustration showing the improvement which has taken place in the plumbers' methods of doing business. In the centre is a premise report card as used by employes. On the right is the card sent to architects and on the left is a smaller blotter such as is sent out periodically with some important message.

The appearance of the Ross Belyea plumbing store from the exterior is enticing enough to attract a great deal of attention. Its appearance is so much superior to the average run of plumbing display shops that it has quickly become the centre of much interest. Suggestive bathroom outfits, kitchen and laundry equipment are shown in groups, and other special heating equipment shown in the other window. Suitable cards are always used the idea being to encourage people to enter the store and talk over their requirements.

the report depends on the employee. If the latter properly fills it out it will give the firm a line on the needs of customers and every sale means more work for everyone. Under this is a place for date, name of prospect, street number and a note to state kind of fixtures now in use. The card on one side lists names of bath, shower, lavatory, closet, sink, laundry tubs, method of heating water, bath room accessories, medicine cabinet. Information to be supplied as to condition of this equipment. On the reverse side is a place for a report on heating, noting the following items. Kind of heat now in use; Heating boiler, Heat regulator; Temp. regulator, Radiator Shields, Radiator valves, Air Valves, Pipe Covering.

From the information supplied on such cards the firm have been able to talk intelligently to many prospects. An important point is for the employee who fills out the card to secure such information in a diplomatic manner without making himself offensive around the house of the customer.

To keep the name of his store before prospects Mr. Belyea uses a thermometer to good advantage when placed on a calendar. He believes in supplying a good type of thermometer which people will value and keep from year to year. He also uses blotters with some suitable message such, for instance, as the following:

PERHAPS this is the first time we have served you. We do not expect everyone's business but we would like yours. May we not have the pleasure of serving you again?

Sends Card to Architects

Another card announcing the opening of the new store and stating that an efficient staff would be glad to estimate on plumbing and heating requirements, was sent to architects. Both of these cards are shown in the illustration along with the drawing which adorned the front of another blotter sent out to drive home the change which has taken place in methods of doing business. Such publicity efforts have not only helped develop business but have brought about a much higher appreciation of the plumber in this community. Letters are sent out periodically to prospects, similar to the one reproduced herewith.

Mr. Belyea has installed a very efficient accounting system and emphasizes the importance of such a system in developing trade. He has found that the figures which such a system give readily are a big help in guiding the business successfully. Included in his over head charge are the following items: office expenses, stationery, postage, etc., Salaries (office only, workmen's wages included in costs), rent and taxes, telephone and telegraph, insurance, advertising and selling, car fares, shop expenses, heat, light and power, interest and discount, automobile upkeep, sundries, unchargeable work, legal expenses, cartage, tool repairs and renewals. Of all jobs except the larger contracting work the charge for overhead is 25% and on contract work it is 15%.

A separate sheet is kept for each job showing costs, overhead charges, profit and charge made to customer. These sheets are posted monthly, and provide a constant record of business.

Obstacles Plumbers Must Overcome

In Planning for Bigger Business Plumbers Must Make Arrangements to Overcome Obstacles Which Face the Trade—What Must be Done to Let Plumbers Receive Full Benefit of Building Operations

BUILDING construction in Montreal this year is progressing in an encouraging way, statements of permits issued, both in the city proper and adjoining municipalities, showing in practically all instances a substantial increase over last year's records. Figures reveal also that dwelling houses form a large portion of the permits, included among them being many apartment houses and house flats. To the plumbing and steam-fitting trade this means a fairly busy year, and from interviews with various master plumbers, Sanitary Engineer learns that an active season is now assured well into the summer at least.

There are, however, obstacles which many established master plumbers are to-day complaining of. A good building year is assured, and much work has been, and will be offered throughout the trade, but it is stated that much of this is not being let through the proper channels. In other words, the plumber who is not an employer, does not own a plumbing establishment, and who cares little for the reputation he leaves behind him, is now obtaining steady employment at a wage which is very often lower than the master plumbers are paying their journeymen plumbers. With the construction of buildings of the dwelling-house type there are always numerous contracts for amounts which do not exceed the thousand dollar mark. The average smaller house requires a bathroom, but oftentimes not an extensive heating system, a hot air furnace often being installed. It is in such cases as these that the difficulty arises, and in which many master plumbers are little interested, therefore not receiving what is considered their legitimate business in the present-day building program.

"If the price tendered exceeds $1,000 or so, we can compete in a legitimate way, but it is almost hopeless to try to secure smaller contracts, for present conditions allow such unfair competition," stated H. Lavigueur of Lavigueur & Menard, 2483 St. Lawrence Blvd., president of the Montreal Master Plumbers' Association.

The grievance is not a new one, the activities of this class of workman becoming more and more in evidence during the past winter months. However, it is considered unfortunate that unfair competition should reach such extensive proportions just now when better times are offered by more activity in building circles.

Complaint is General

While some sections of the city are more fortunate than others in the amount of buildings being erected, the complaint is generally expressed by plumbers both in the outlying sections and in the down-town district. A plumbing shop owner in one of the outside wards stated that construction was being carried out in nearly every block in his locality but he had not been asked to tender on them. He could quite understand why he was not called upon for a price on many of them because competition was keen, and very often general contractors erected buildings in all parts of the city with usually only a few plumbing houses asked to tender. House owners themselves, however, were supplying the material in some instances and outside labor was doing the installation. "We have made inquiries on more than one occasion, but the only satisfaction we were given was that a master plumber was installing the material which the owner had purchased. The master plumber was a journeyman who had secured a $5.00 license from the City Hall, which entitled him to do the work and the fixtures were bought from a supply house," he stated.

To have gone to the expense of keeping a man employed when he was really not required during the quiet months of last winter, and then when it was found that he could not be retained any longer because trade was slack, to have taken the trouble of trying to get him placed in another shop, but to be told that the release came at a very opportune time was the experience of another down-town plumber not long ago. The man had been kept at the bench all winter, his employer feeling that he could not afford to be out of work. Work was at that time coming in very slowly and the man was certainly not required. When the weather opened a little and the master plumber felt the man could perhaps obtain work elsewhere, he decided to let him go. Before doing so, however, he did his best to get employment for him among friends in the trade. Failing this he approached the man and told him he would need him no longer. Instead of receiving the reply expected, the journeyman told him that he was glad it did not happen sooner, but he was then quite willing to be let go as he had two hot air furnaces to instal. This man had obtained a $5.00 license and had solicited the work of installing these furnaces, as a master plumber.

Establishing Themselves As Master Plumbers

Nothing was considered wrong with this if the man intended to permanently establish himself as a master plumber. Unfortunately though cases of this nature had come to light before. Men were sometimes doing this for the express purpose of making extra money while doing the work, and return as a journeyman when business became slack with them. They were protected by the law at the expense of the public. Unsatisfactory heating jobs and plumbing installations which caused unsanitary conditions in the home had repeatedly come to the attention of this master plumber, usually traced to this kind of labor.

Higher Fee As a Protection

"In our locality in the eastern end of the city we are not called upon to meet the situation to the same extent that unfortunately exists in certain sections of the west end, although it does exist here also. We have been informed, and quite authoritatively too, that only a very small percentage of the work there is being done by legitimate master plumbers of the city. At a time like this, when building should create a general better feeling in the trade, it is extremely unfortunate that such a condition should exist," said J. E. Hardy, 666 Papineau Ave.

A higher license fee, such as has been recently suggested by a delegation of master plumbers to the Executive Committee of the City Council, is highly endorsed by Mr. Hardy as a remedy for the present unsettled condition. While the initial fee of $200, and $50 a year renewal, seems high to some, Mr. Hardy is convinced that it will be well worth this figure, and even more, to safeguard both the plumbing trade and the general public.

Busy Season Will Assist Toward Improvement

More extensive building operations during the summer months is expected to help considerably in a solution to the problem. Master plumbers will in many cases further increase their staffs, thus easing the unemployment question which has been responsible to quite an extent for the trouble in the past winter. Men being offered no work through the regular channels have endeavored to try it "on their own."

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The question of increased license fees is still uppermost in the minds of local master plumbers, and while there is some difference of opinion as to the amount that should be taxed, it is thought that action will be taken by the City Hall in the near future, resulting from the recent delegation which waited on the City Council. In all probability further advice will be asked on the question from the various master plumbers, but the fact that the delegation was favorably received, and assured that every consideration would be given the matter, leads the trade to believe that the city authorities are willing to assist.

IMPORTANT CHANGES IN TAXES AND TARIFFS

(Continued from page 19)

the British preferential tariff. In this connection it is noted that imports for eleven months ending February 1922 are as follows:— From United Kingdom, $49,984; from United States, $706,228; Germany, $8,685; Sweden, $6,359. Total imports $773,136. It is evident that the idea is to give British trade some little advantage in view of the big proportion of business in this line now being done with other countries.

Enameled Ware

Enameled ware is reduced 2½ per cent. under the rate on British enameled ware down to 20 per cent. compared with 35 per cent. general tariff. Total imports of enameled products for the eleven months ending February were as follows: From United Kingdom, $63,744; from United States, $702,122.

Exempt Goods Made to Special Order

Concerning the much debated ques-

(Continued on page 43)

A Work Sheet Which Protects Plumber and the Customer

TELEPHONE COLLEGE 991 JOBBING PROMPTLY ATTENDED TO

Terms Strictly Cash

WALTER HILL & SON

Sanitary and Heating Engineers

788 College Street

Date——————192—— WORK SHEET

Job ..... Name of Tenant ..... Phone .....

Name and address of Owner ..... Phone .....

Who gave Order .....

Full description of work done .....

.....

Materials Used	Price

No. of Hours .....

Signature of Workman .....

(Owner please sign here if work is satisfactory and this account correct.)

.....

Remarks .....

.....

.....

Prospects .....

.....

Every sanitary and heating engineer has had experience with the complaints of customers concerning material used and workmen's time while employed on certain jobs after they have been completed. To meet this difficulty, Walter Hill and Son, 788 College St., Toronto, make use of the work sheet shown above on a small scale. The sheet as used is printed on a sheet 8½ in. x 11 in. The sheet provides space for the job number, date, name of tenant, 'phone number, name, address and 'phone number of owner, name of person giving order and full description of work done. The body of the sheet is for a description of materials used and the price for them. At the bottom is space for the number of hours to be vouched for by the workman's signature and a place for the signature of the owner of the property. This latter signature guarantees against any later claim regarding workmen's time or material. At the bottom is a place for other remarks and prospects. This latter feature takes the place of the premise report card. This is a very complete and useful Work Sheet and one which might be given wider usage.

Opportunities For Sale of Closet Seats

Many Possibilities for Sale of Closet Seats and Similar Articles Overlooked—Thousands of Unsanitary Closet Seats in Use—Strong Arguments for Periodic Change of Seats on Closets, Particularly in Public Lavatories

THE FACT that a closet seat is just a closet seat without any frills and trimmings and very little trouble to install; because the demand for them on the part of the average citizen has not been excessive, and due to the fact that the average man and his family will usually try to get along with the old broken down and dilapidated seat until it will no longer hang together, is probably one of the main reasons why the average sanitary engineer has never gone to any great trouble in trying to push this particular line.

Despite this fact, however, the field for the sale of closet seats has wide possibilities, there being no doubt that thousands upon thousands of closet seats which are being used daily throughout the country, are not fit for human use.

We do not have to look far for prospects to whom the sale of modern, sanitary closet seats could be made if approached in the proper manner. One has only to do a little traveling to know that the majority of our public buildings, especially hotels, are painfully deficient in this respect. The desire for cleanliness was never stronger than it is in this 20th century of ours. We like to have our homes a model of cleanliness. When we are traveling we also like to stop at those places, if possible, where cleanliness is apparent on all sides.

Unsanitary Closets The Rule

Nothing disgusts the average human being more than upon going into the lavatory of the hotel to find the closet seat in a dilapidated and filthy state. And yet, with the exception of a few of the larger hotels in some of the cities, unsanitary closet seats are the rule rather than the exception.

In numerous towns throughout Canada there is not one hotel which can boast of anything sanitary in the way of closet seats From actual experience the writer is quite safe in saying that there are hundreds of hotels in this country which lose thousands of dollars' worth of business annually due entirely to the fact that sanitary conveniences are not available. Often times when going to certain cities and towns it will be invariably found that the majority of traveling men will patronize that hotel in a town which offers him the cleanest and most sanitary bath, toilet and closet fixtures. Often times it happens that there is little choice in this matter and it is then a question of choosing the lesser evil and trusting to God to keep him clear from disease and hoping that he may finish his business quick and get off to the next town where there may happen to be a "decent" hotel.

Open Joints Collect Filth

There is no getting away from the fact that closet seats which are open at the joints are bound to collect a lot of foreign matter which in time decays and become a menace to health. It often happens, too, that the varnish or enamel, through course of time or ill attention has been worn off, leaving the open pores of the wood exposed. This provides just as good a lurking place for disease as any other, as many have found out to their cost. It is common knowledge to medical men that unsanitary closet seats and lavatories take their daily toll in spreading venereal and skin disease and the writer is of the opinion the time is long since due when the health authorities in the different municipalities should demand and see that sanitary conditions prevail in hotels, railway stations and other public buildings.

The unsanitary conditions prevailing in a great number of our railway stations are a disgrace to the railway companies and a crime against humanity and it is just a question how long public opinion will stand for this sort of thing, especially when it is brought home to them just what a menace many of them are coming in contact with daily.

The sanitary engineer who would get more business in closet seats has not only a large field to work upon but some of the finest and most worthy arguments in the world to back up his reasons for wishing to sell his prospects on this particular proposition.

Salesmen Help the Good Work

One Canadian manufacturer of closet combinations told the writer not long ago that he has instructed his salesmen to do all they can towards seeing that the hotels at which they stop are properly equipped in this respect. This plan has been working out very favorably. If a salesman finds that unsanitary conditions prevail in the hotel where he is stopping, he gets in touch with the proprietor or manager and points out in a nice way that the lack of sanitary fixtures is one of the worst advertisements the hotel could have and that good business is probably being lost every day for this reason. He then goes on to explain that one of the local sanitary engineers can remedy this deficiency at a reasonable cost, with the result that in a number of cases the salesmen of this particular firm have been able to swing some nice business in the way of the trade. To show that the public at large are not well-informed on plumbing fixtures, this manufacturer told me that his salesmen often run across hotelmen who think that it is necessary to purchase a whole new closet combination when a new seat is required.

This ignorance on the part of the public is probably due to the fact that the average sanitary engineer has never made any strenuous effort to push the sale of closet seats, but in view of the fact that the question is such a vital one and there is enough business to make it profitable to do a little concentrating on, there is no doubt that more real selling will be done along this line than ever before.

The writer believes that this question is of sufficient importance to be dealt with at the next conventions of the provincial societies by forwarding a strong resolution to the Federal and Provincial Health Departments.

PORT HOPE

There is No Magic Touch

THE old story that "salesmen are born, not made" dies hard. All myths do. As a matter of fact the successful salesman of to-day merely combines common sense with enthusiasm and energy.

He has a story to tell—he tells it. To be successful he must be believed—so he tells his story with force and conviction. He dispels false impressions about his product or proposition. He knows all the advantages of his merchandise—and makes the most of them.

But there is no magic touch—just the sensible leading of the prospect through the mental steps necessary in the making of the sale. When Bob Stevens decided that he wasn't getting the replacement business that he ought to get, he decided on a plan of action that he figured would get results. He knew that people would have to be educated to install modern plumbing fixtures and he had "horse sense" enough to know that he would have to do some advertising. So—he enlisted the manufacturer's help by sending for some free advertising cuts, and ran these in his local **Newspaper.** Then he mapped out his district and compiled a mailing list from the directory.

PORT HOPE

THEN WITH a supply of circulars, blotters and catalogues, supplied him by the manufacturers—Bob was ready for the fray.

First he mailed a splendidly gotten up little circular to his list—which told how necessary modern sanitary plumbing fixtures were to health and comfort. Because this was attractively gotten up, it was read thoroughly by those who received it and made a favorable impression.

Next Bob sent some blotters to the same list with an illustration of an up-to-date bathroom on it. He knew this would be kept in a handy place and that it would keep his message before them.

Now with the daily newspaper advertising, and the mailing of the circular letter and blotter, Bob figured that his preliminary work was complete and that the time had come to get into the arena personally.

PORT HOPE

Arming himself with a number of catalogues, he sallied forth with the object of calling personally on his prospects. When he explained who he was and that he just wanted to show how reasonably most fixtures could be purchased and how much they meant in increased health alone, he found that he was well received in most cases.

He would ask them to let him look the present system over while he was there and made recommendations, showed why it was desirable to replace certain obsolete fixtures and gave estimates on the cost of installing them. He made the most of his visit in each case. Often he would find something wrong with the piping, hot water heater or other equipment and, of course, after pointing out these faults, people usually wanted him to send around one of his men to repair them.

Before leaving he would leave a copy of the catalogue with the request that they look it over carefully and let him know when they had decided what they wanted.

If people Bob had called on didn't get in touch with him after a reasonable length of time, he would either call them on the phone or go around and see them again, and this usually resulted in an order.

PORT HOPE

Now Bob has his district sold solid on Modern Plumbing fixtures and every day sees new orders coming in and the only time he eases up on a prospect is when he is sure that the prospect has not got the money. In cases like this Bob figures that his advertising will keep them sold on the idea and that they will buy just as soon as they can afford it.

The Port Hope Advertising Service consists of well planned blotters, folders, circulars, booklets and catalogs, as well as cuts for use in your local newspaper.

They're free! A request will bring them.

Successful Sanitary Engineers have realized the value of putting these Port Hope Sales-Helps to work.

They're Sales Boosters—Every one of them.

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights —Keep the Entire Series Where It May Be Referred To And Studied

(Continued from last issue)

FIG. 72 shows a typical layout for four contact beds operated by Miller alternating and time syphon, which feeds and drains each bed respectively. The size, number and general arrangement can be varied to suit the size of plan and the topography of the selected site. The alternating syphons are set and regulated to discharge the contents of the dosing chamber to each bed alternatively governed by the height the syphons are set to and the water seal contained in each syphon. The capacity of these syphons should be equal to the liquid capacity of the voids in the contact material of one bed.

The working of a Contact Bed consists of filling the bed with sewage, allowing same to stand full for a pre-determined length of time, and then rapidly emptied and allowed to rest to obtain the necessary aeration for a given time. This can be accomplished automatically by timed syphons for emptying purposes, which are operated by breaking the seal of a blow-off trap by means of the pressure developed in the starting bell which is located in the timing which prevents the main syphon starting until the chamber is filled to the required depth. The time required to fill the timing chamber is controlled and regulated by a timing valve so that when the liquid gets to the required depth the seal of the blow-off trap is forced releasing the air confined in the main syphon and starting the action of the syphon. The sketch shows the manner of distribution and underdrainage suitable for this class of bed, the filtering media can be sand and coarse broken stone and the depth should not be more than 4 to 6 feet in depth and well ventilated.

Percolating, continuous or trickling filters have been installed more recently in the majority of large installations in preference to the contact beds and providing the quantity or flow of sewage is sufficient in order that you can apply the sewage continually on the bed it is always possible to obtain better distribution consequently better results with less supervision.

The great advantage of this filter over the contact filter is that the filtering media is always surrounded by an air space which enables the micro-organic life to be continually developing which is impossible in contact beds when they are filled with liquid and again a larger percentage of purification is thus obtained, nitrites and nitrates are more readily produced and organic matter converted into inert substances. So whenever sufficient fall on the disposal site is available percolating filters should be installed in preference to contact beds.

In order to obtain tne total area of filtration required for a given quantity of sewage, the following formula based upon practical results will give the required area in yards:

$$A = \frac{G}{D \times C}$$

A = Area of beds in square yards.
G = Gallons of sewage treated per day.
D = Depth of bed in feet.
C = 28 constant.

The beds must be designed for the maximum amount which it is proposed to treat and then, if necessary, subdivided into a number of beds. It is always advisable to have at least the bed in duplicate so that they can be given periods of work and rest alternately.

Percolating beds may either be circular, rectangular or square depending upon the design of the distributors. The circular has found favour in European cities owing to the high standard efficiency obtained by the circular rotating distributing apparatus whilst on the American continent the rectangular or square type of tank has found favour with fixed spring distributors, the great drawback being the amount of head—5 ft. at least in order to effectively distribute a good spray from the distributing nozzle.

These filters should be divided into bays one half of which distribute when the apparatus is passing down the bed and the other half on its return, this obviates the ends of the filter from being wetted too frequently.

The levels of the outfall site and shape of the land will govern the best arrangement of filters from both working and economical results as on such levels depends the enclosing walls of the filter whether built honey-combed or solid sunk in the ground or embanked above it.

(To be continued)

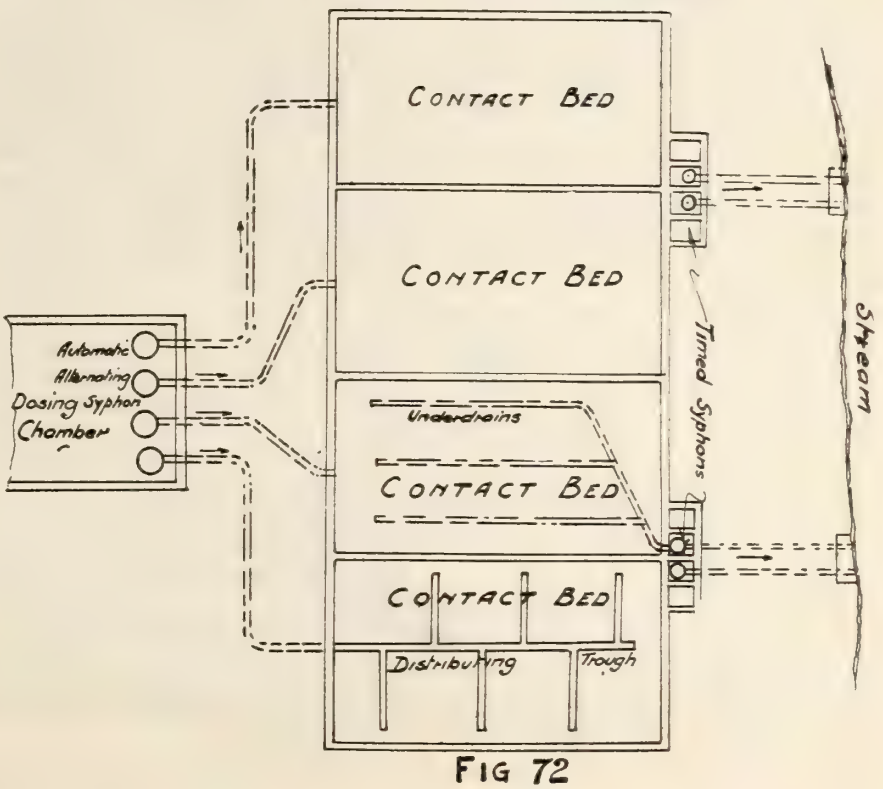


FIG 72

Customer is Master, Salesman is Servant

Studying the Art of Salesmanship is Interesting and Profitable —In Rapid Growth of Plumbing and Heating Distribution the Fine Points of Selling Have Been Frequently Neglected

ANY MAN who will, may become a good salesman. This is true, but it is not any easy thing to become a good salesman. Just how to make known what good salesmanship is would be a heavy task, but it may be taken for granted that a good salesman is among the "top-notchers."

Salesmanship is a profession. It can be learned just about as easily as law, medicine or any of the other professions, and it cannot be learned any easier. Like any other profession, it requires persistent and arduous application to master it, and to keep posted in its newest phases and developments.

These men are paid to be agreeable and polite; to dress in a manner befitting the establishment; to make friends for the store by their affability. The wares, or the prices placed upon them are expected to effect the sales.

Educated in Smaller Shops

On the other hand, many of the so-called salesmen are getting their education in the smaller shops under men who have no inclination or ability to instruct properly the apprentices under them.

The man who wants to become a good salesman must do so by his own efforts. If he is ambitious and willing to give the time to the study he may succeed in spite of all things that combine against his success. It all depends upon his own endeavors.

There are three things a man must know before he can become a good salesman. These are: Himself, his wares and his customers.

First of all, he must study himself. Very few men know themselves although most men think they do. They do not.

To become a successful salesman a man must be able to govern his thoughts and control his actions. He must have a good impression on his customer and he cannot do this if in any way his actions create in the mind of his customer the slightest degree of antagonism.

He must study his appearance and make it pleasing. He must study the very expressions of his face. He must be able to assume all the appearance of surprise, pain, joy, sympathy, respect and a host of other emotions.

He must be able to concentrate his thoughts upon the thing in hand. He must be able at will to exclude all other thoughts from his mind. If his thoughts are allowed to dwell upon outside subjects his magnetic force is divided and becomes greatly lessened in power if not negative in effect.

He must cultivate good taste and judgment. Good taste more especially in respect to his personal appearance and dress. A careworn face or one showing signs of dissipation has a marked negative effect upon his customers. So also has the appearance of lack of taste in his dress.

Personal Attributes

The pleasing man will have a cheerful countenance, a clear eye, a clean-shaven, well-groomed face and a neatness in dress that will at once place him, in the customer's opinion at least, among that class of men in whose company cultivated persons like to be seen.

He must cultivate good judgment in the choice of friends. Our likes and dislikes, if allowed to rule us without restraint, are sometimes prone to work evil for us. A salesman should never condescend to lower himself in his own estimation in choosing companions of a lower order of morality, culture or refinement. If he does he will eventually lower himself to their level in the sight of others, if not in reality.

The salesman must cultivate his voice. He must be able to modulate his tones to harmonize with his thoughts and with the feelings of his customers.

He must study correct modes of speech. He must study to put his thoughts into pleasing sentences. He must study to make his sentences produce logical arguments.

He must recognize the fact that he is the servant and that the customer is the master. He is at all times open to all sorts of senseless abuse, suspicion and discomfort at the hands of the public. He must learn to sink his feelings behind a stoical exterior and smile as pleasantly as if nothing had occurred to disturb his equanimity. It is in these situations that tactful control of himself will win a reward in the end.

The second proposition is important. He must study his wares. It is only the man who knows what he is selling that can reach above the average in sales.

The street vendor and itinerant peddler is usually a salesman of considerable ability. This is due in some measure to a knowledge of his wares. He knows the good points of the article he has for sale. He has learned by constant contact how to present these good points and to keep them to the front, to present them in such a way that they overshadow all the weak points.

Many men behind the counters not only fail to recognize the good points in the goods they have to sell, but see looming up largely before their mind the weaker points. A well-balanced mind would not allow this state of affairs.

Must Know His Customers

Lastly the salesman must know his customers. This is an easy task after he has mastered the story of himself. We are all human. All have, more or less, the same emotions and the same method of expressing them.

Psychological experts can read the human mind like an "open book," because they have learned to read the expressions of the face, the effects of the emotions on the face and physical form of man. The salesman must make almost as exhaustive a study of his customers as the professor of psychology does of mankind.

The art of control, which is recommended to the salesman, is practised by so few that he will have a chance to read the public with little effort. Once he knows the feelings of a customer towards his goods and himself he is in possession of the means of securing sales.

All this may seem formidable to the unpractised salesman, but rest assured that once this study is undertaken it will be continued for the fascinating disclosures that are being made every day. The study is both profitable and pleasing.

Salesmanship is a profession and requires persistent study.

"Order Takers" must now train themselves in salesmanship in order to make progress.

Some of the necessary personal attributes.

Study wares, line up sales arguments and learn to present them in the most forceful manner.

PLAN TO EXTEND BALDWIN PLANT

Sir Charles Wright, London, England, a director of the steel firm of Baldwin's Limited, and also a director of Baldwin's Canadian Steel Corporation made an inspection of the Canadian Company's plant on Ashbridges' Bay, Toronto, and is investigating business conditions generally in this country.

He was the British director of steel production in connection with munitions during the war and is recognized as one of the leaders in the steel industry in Great Britain. His visit probably portends the extension of the works on Ashbridges' Bay to a very considerable extent.

A Study in Repose:—There were two figures in the wheat field. One stood stolidly, motionless. The other moved here and there. One was the hired man; the other was a scarecrow. The reason the scarecrow moved so much was that he couldn't stand still in the wind like the hired man!—New Rochelle Standard.

* * * *

A Sensitive Sole:—Colored Rookie—"I'd lahk to have a new pair o' shoes suh!"

Sergeant—"Are your shoes worn out?"

"Worn out! Man, the bottums on mah shoes are so thin ah can step on a dime and tell whether it's heads or tails!"—Pitt Panther.

* * * *

HAS THE RIGHT IDEA

This bath a day stuff is the thing
To give the Pub-i-lic, by jing.
I tell 'em that it gives 'em health
Which, of course, results in wealth.

I send them booklets by the score
To read until their eyes are sore.
I send 'em leaflets, blotters, cards,
And circulars by the dozen yards.

These tell 'em why they all should bathe
Once every day and thusly save,
Their health and strength and good complexion,
And guard against disease infection.

I put it to them plump and plain
Just what in Sam Hill do they gain
In trying to save on the plumbing bill,
And pay double the price for a doctor's pill.

For prevention, folks, is better'n cure
And the right kind of plumbing will ensure
The best of health and spirits too
Which is all they can expect a fellow to do.

So get busy boys and give 'em the dope
You can't make folks buy if you sit 'round and mope
Tell them your story, drive it home with a punch,
Then call 'round in person and clean up the bunch.

Anonymous.

Atta boy, Anonymous, you've got the right idea.

"Hitting The Nail On The Head" For More Business

Following up Local Prospects Brings Much More Business in Sanitary Heating Equipment—Where to Look For Leads—June Weddings and Business

(Written for Sanitary Engineer, by Major L. L. Anthes, President Anthes Foundry, Limited.

IT HAS always been a mystery to the layman how the city daily newspaper obtains the various news items that give us such a fund of information regarding the world's events.

Before I became a reporter some twenty odd years ago I was as much puzzled as anyone else, but after I became "initiated" the "mystery" was a "mystery" no longer.

About this time of the year preparations are under way for the multiplicity of "June Weddings" of which there are sometimes dozens in one day during the leafy month.

In those days, the reporter had a number of reliable sources of information particularly as regards the more imposing events.

What were these sources of information?

Why the florists, caterers and livery stables. The man or woman who was assigned to "weddings" kept in daily touch with the leading people of these trades. As orders for carriages, flowers and refreshments were usually placed a few days ahead, the reporter had sufficient advance notice to obtain his details and his "story" for the paper was usually "set up" and "held" for the day of the "big event."

Well, what has this got to do with selling plumbing goods?

I'll tell you.

In a little town less than fifty miles west of Toronto, a well-known plumber has his shop on the main street of the town, this being the main artery of the country.

Almost any day during the winter and inclement weather "Billy" the proprietor, can be seen on the inside looking out, and in fair weather, on the outside looking around.

One day I was standing on the outside with "Billy" discussing things generally when he suddenly said "Excuse me," and made for a load of lumber which happened to be crossing the intersection of the main street half a block away.

"Are you building a house?" I asked him on his return. "No," he answered. "I just wanted to find where that load of lumber was going."

Then he explained to me that he kept tab on the movement of all building supplies in his township and as a result he always had advance information on new residences, rural and otherwise. This information he followed up and in the majority of cases talked the builder into a plumbing installation.

He was doing exactly what the reporter was doing when he went after information on "weddings."

They were both using simple but effective business methods, which required only alertness, quick action and perseverance.

This same simple business expedient, if put into practice and continued would keep every plumber in the country busy, and they all could have an attractive shop and a comfortable home like my good friend Billy.

Keep in touch with the building supply men, planing mill operators, brick-makers and other kindred tradesmen in your locality, and the success of the big daily newspaper will be no longer a "mystery."

"Cashing in" on Value of Connection with Public Through Advertisements

ONE OF THE chief connections which the sanitary and heating engineer has with the public is through the medium of his advertising. This is found to be one of the mediums by which the public judge the business man and therefore too much attention cannot be given to the preparation of effective advertising copy. The adds of some engineers throughout the country are shown herewith as a guide.

"Our Hobby is Good Work Only," is the heading on the ad by Erskine Smith & Co., Ottawa, Ont., which continues: "We concentrate on plumbing and heating work only and use nothing but the best materials with honest workmanship. How can we serve you? At this annual Clean Up time your furnace pipes cleaned and any minor repairs done. Time too, to discard that zinc bath tub and sink and let us instal sanitary enamelled ware. You are invited to visit our showrooms and inspect the latest productions in heating and plumbing appliances."

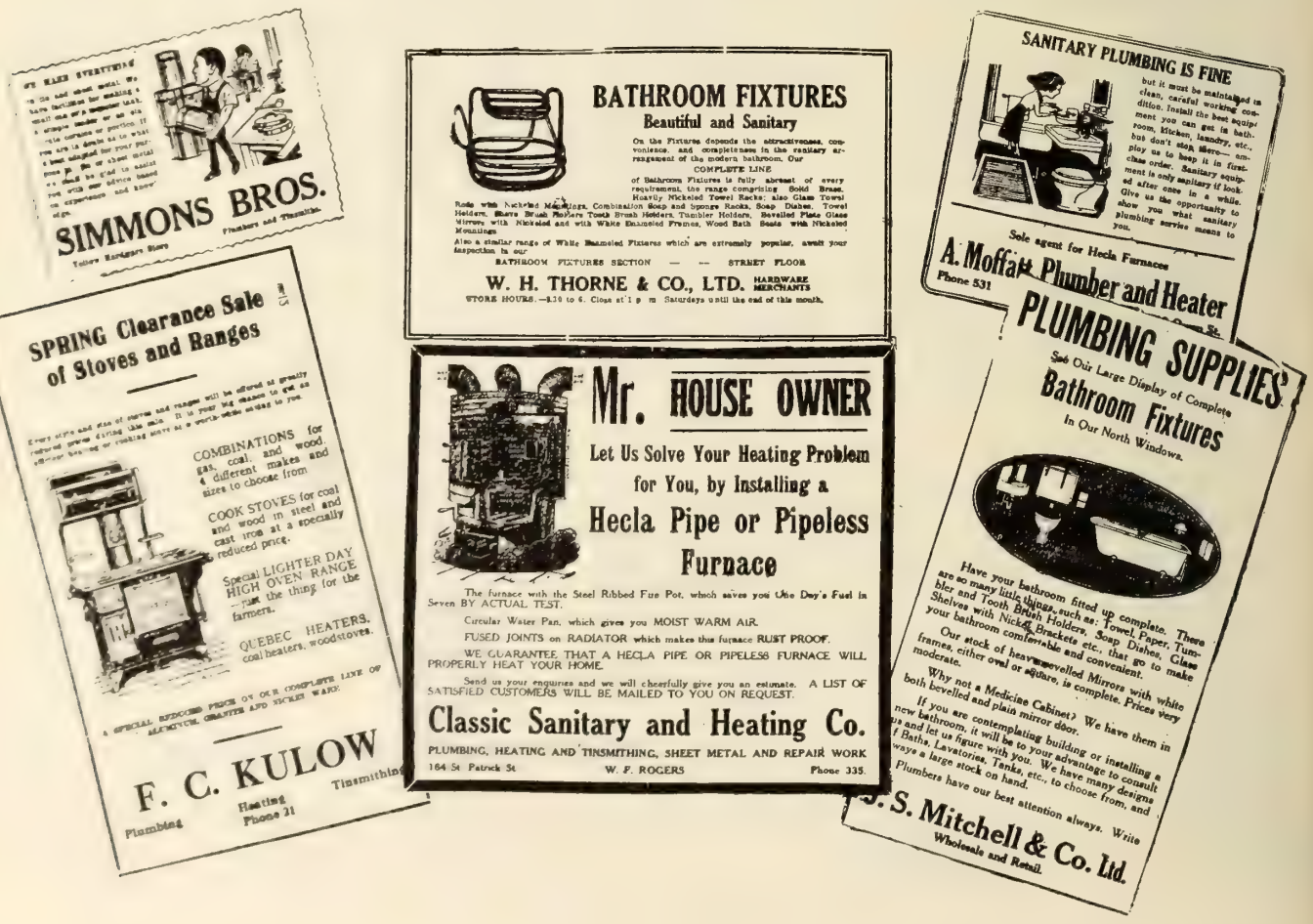
Gas Water Heaters

McKelvey & Birch, Ltd., Kingston, Ont., devote a good size ad to various styles of gas water heaters and gas stoves. The ad by W. H. Thorne Co., Ltd., St. John, N. B., is devoted to bathroom fixtures and reads: "On the fixtures depends the attractiveness, convenience and completeness in the sanitary arrangement of the modern bathroom. Our complete line of bathroom fixtures is fully abreast of every requirement the range comprising solid brass, heavily nickelled towel racks, also glass towel rods, combination soap and sponge racks, soap dishes, towel mirrors, shave brush holders, toothbrush holders, tumbler holders, bevelled glass mirrors, wood bath seats. Also a similar range of white enameled fixtures which are extremely popular."

Brousseau & Frere, Quebec City, advertise: "Modern Plumbing. For the plumbing, heating and radiation of your new home or improvements to existing systems it will pay you to place your work with an experienced and resourceful firm. Our Advisory Service is at your disposal—use it freely. It may save you many hundreds of dollars unnecessary expense and much bothersome delay."

Shower Baths

Under the heading, "A Shower for Health," the ad by Taylor Bros., Brantford, Ont., says, "Doctors say that the morning shower bath contributes in no small measure to one's health and immunity from colds and disease. Why not one of our standard showers in your bathroom? Our sanitary toilet and bath tubs and basins are the best of their kind. Sanitary kitchen sinks that wear well."

"When planning your home," is the heading of an ad by Hamilton & Stott, St. Thomas, Ont., which continues, "Con-

sideration of health comes first. That means plumbing—good sanitary fixtures and fittings in the kitchen and elsewhere. Above all the bathroom must be right. It must be as spick and span and wholesome as you would have yourselves and your children. Let us show you the lustrous white porcelain enameled bathroom equipment we have in our store. You will find its price as satisfactory as its appearance and obvious convenience."

"Tight Joints" is the heading on an ad by R. Chestnut & Sons, Ltd., St. John, N.B., which continues "and careful cutting, threading and fitting are features of our pipe work. In fact pipe making and fitting are distinct specialties with us in which we are known to excel. When figuring on piping of any kind consult us and get our estimates."

E. Lawranson, Kingston, Ont., also deals with the greater enjoyment which comes from home life where the best sanitary fixtures are in use.

The master plumbers of Ottawa, Ont., recently combined to run an advertisement advising local people of an alteration of the charge for plumbing and heating work. This ad signed by McKinley & Northwood, W. G. Edge, Ltd., Erskine & Smith, Holloway & Son, Coldrey & Chapman, Gervin & Hodgins, J. Fitzpatrick, Band & Cole, Livoch & McCall, May & Patterson, all of Ottawa, read as follows: "Owing to the reduced rates paid journeymen plumbers and steamfitters, from 80c. to 75c. an hour, from May 1, the Ottawa Master Plumbers' Association have reduced their rates to the public on jobbing work from $1.50 to $1.40 per hour."

Cutting the Cost

Under the heading "Cut the Cost," an ad by Select Plumbing & Heating Co., Sault Ste. Marie, Ont., says, "not by inferior work or material but by a sytematized method of turning hours into minutes. Our travelling workshop brings system into the plumbing and heating business and fills a long felt want. No lost time running back to the shop for tools, etc. Our aim is to get on the job as quick as possible and get through as soon as possible leaving a satisfied customer when we finish. Volume of work and not exorbitant prices is our foundation."

The Building Situation

Little building of an industrial nature is likely to be done for some time due to the fact that most industries expanded their premises during boom times when an abnormal capacity was established. The constant increase in rents has been a factor in assisting house building, as many tenants have been impelled to become owners.

The building which is going on is chiefly of a cheap to medium priced class of house, this being due partially to the fact that financial houses are discouraging large scale construction during times of depression, and also to the fact that there is a certain amount of speculation involved which deters the contractor from investing to too great an extent while the danger of loss exists. The tendency to build large numbers of a fairly cheap grade of house with the expectation of turning them over at a small margin of profit, is borne out by the experiences of manufacturers of hardware, stoves, etc., who are called upon for a class of material suitable for this purpose. However the revival of house building is a good indication that fairly stable conditions have arrived and the plumbing trade and business as a whole should benefit by it.

Industries throughout Eastern Canada, notably those engaged in the production of plumbing goods and other products, point out that further reductions in prices can only come from the reduction of the present high freight rates. Thus it is seen that from the standpoint of all interests throughout Canada, it is necessary that the conferences between the government and the railway chiefs bring about some helpful solution of the problem.

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Should Curb Unfair Publicity

A NOTE appearing in a Woodstock, Ont., newspaper this week reads:

A resident of Woodstock, who owns a home in Toronto, has just received a bill from a plumber in the Queen City, who made some repairs to the local citizen's Queen City house. The bill speaks for itself and leads one to believe that war-time prices still prevail in Toronto, for labor at least. The account reads: To one washer for tap—5 cents; to putting washer on tap—$1.05; total $1.10.

This is the sort of unfair publicity which plumbers must take steps to eradicate. The plumber is a skilled mechanic whose time is worth a fair price, and necessarily the time spent on putting on the washer and covering the distance to and from the shop in this case made such a time charge necessary. The plumber is not a handy-man, he is not anxious for this kind of business unless he makes a specialty of it by the use of an emergency truck which cuts the cost on such small work by doing a large volume of it, and he should let the public know that if they insist on calling him a long distance to do such a trivial job then they must be prepared to pay for it.

Sales Stimulation

THIS ISSUE, entitled the Sales Stimulation number of Sanitary Engineer, has been prepared with the idea of driving home to readers the results which can be secured by the employment of aggressive business principles at the present time. At a recent gathering of sanitary and heating engineers there was a broad discussion of business conditions and underlying it all was the fact that those operators who were thoughtfully planning ways and means of increasing trade and taking advantage of every prospect offering were actively engaged with work coming along to keep them busy well into the summer. Others whose chief occupation was complaining over conditions invariably painted the situation very black.

Many of the new problems with which the industry is confronted today are due to the lack of aggressive measures to keep business going. Journeymen are doing much work "on the side" at rates much lower than is charged by their employers thus not only taking legitimate business away from the master plumbers but putting the whole industry in a bad light by quoting such a wide variation in rates. This in turn keeps overhead expenses high and frequently lately there have been letters in the newspapers from people asking "why does a master plumber charge $1.40 an hour when he pays his employees only 75 cents on hour?" These are just some of the evils which face the trade today and the solution of most of them lies in increasing the volume of business.

In this issue will be found many interesting and helpful ideas for stimulating trade. A number of the accepted principles of business are dealt with and some opinions as to their efficiency or otherwise are given. These in many cases reveal both sides of the subject and are worth a study. Ways of securing "leads" for business, prospect lists, etc., are dealt with, and the business methods of some successful sanitary engineers are outlined in detail. The need for sanitary equipment in Canada is great, and with business now becoming more settled with the new taxation and tariff proposals outlined and with farmers becoming better able to fill their requirements and meet paymentss, there should be a good response to the employment of aggressive principles for developing business. Study the suggestions in this issue and then put them into use.

The Budget

THE LONG awaited Budegt of the Minister of Finance has just been presented at Ottawa and some reassurance is already felt by the fact that it is much less radical than the provisions of some other Budgets of recent years. The measures outlined in this year's Budget are simple in the extreme, in many respects being but an extension of principles which have been in use for some time and with which business men have become acquainted.

Perhaps the most important change with a direct bearing on the trade is the increasing of the sales tax fifty per cent. This impost has not worked out as smoothly as might be desired in some ways and action will be welcomed toward establishing a definite policy. In many cases it has been found necessary for retailers to absorb this tax, being unable to pass it on to the consumer in some lines, notably those carrying a more or less fixed re-sale price.

Then there are a number of interesting tariff revisions under which reductions are made either in the British preferential or general tariffs, or in both, on tools, wrought iron tubing, gasoline, enamelled ware, certain hollow ware, harness, clothes wringers, pump parts, etc. In practically each case the changes have been along the line of encouraging British trade, this being due to the fact that the great bulk of trade in such lines has been with other countries.

The cancellation of the Marking of Imports regulations, Depreciated Currency Regulations and Valuation of Goods Act, removes a source of much worry and trouble to impending investigation. While there was a distinct purpose for each of these regulations, practice has shown that they have not been adequate to cope with the situation. Merchandise which was expected to be barred out by such regulations has been coming through Holland and other countries and thus escaping the force of these regulations. Some better means will have to be found to meet this difficulty if it is desired to bar the import of such goods.

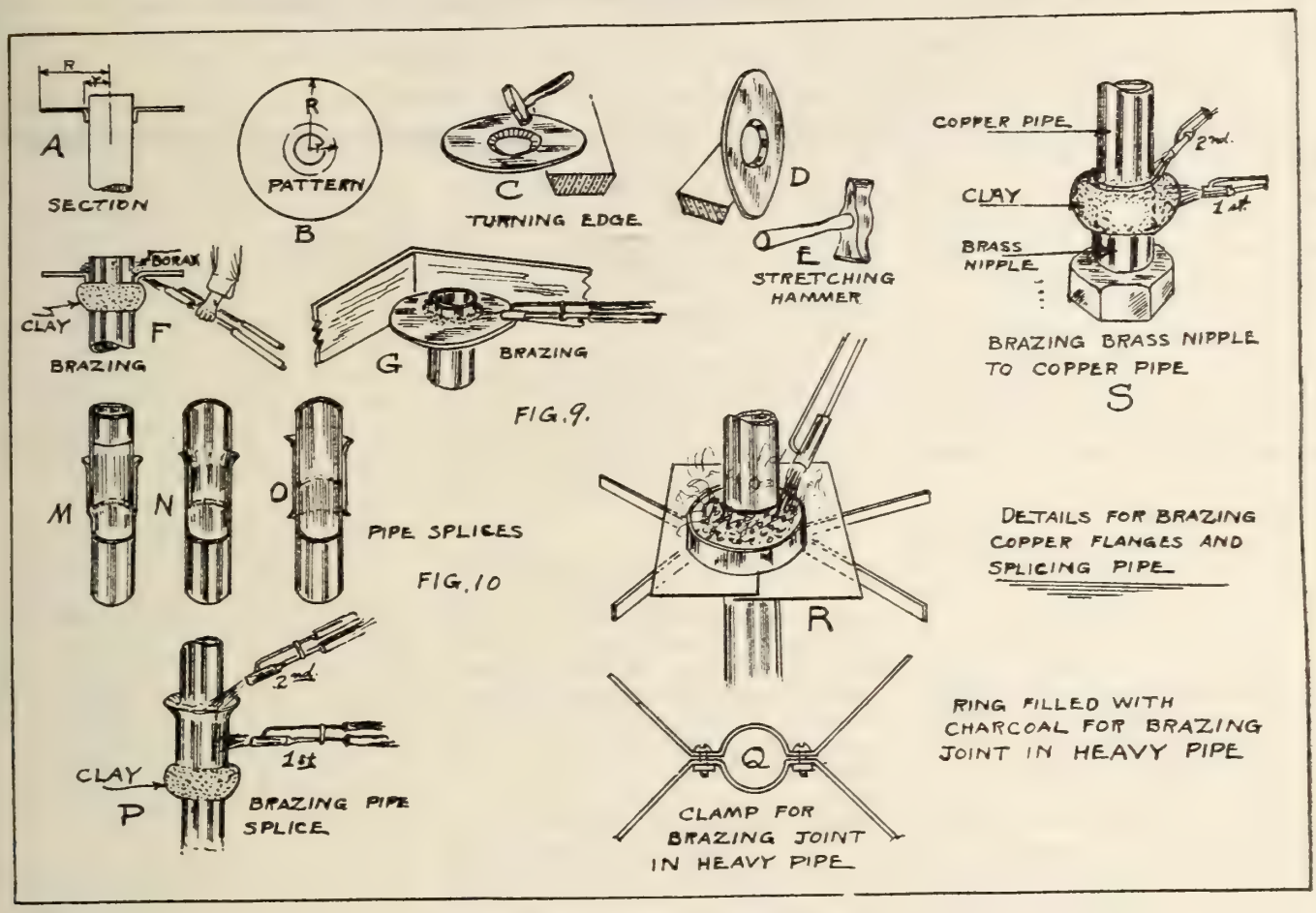
Farmers have been given a large measure of consideration under the regulations, and as result should be helped greatly to recovery; thus be in better position to meet their payments and be in position to procure their requirements. This in turn will help general business greatly.

There are many points to be smoothed out in the application of the regulations and if readers have opinions to be expressed after a study of the regulations elsewhere in this issue, the Editor will be pleased to hear of them.

THAT THE anti-combine legislation which the Attorney General of Ontario endeavored to have passed at the present session is not considered acutely necessary by the legislators in the larger sphere at Ottawa is indicated by the answer given a member this week in the House of Commons when he enquired as to the number of prosecutions against trusts and combines in Canada from 1909 to 1922. The answer was that there were no prosecutions in that time under the Combines Investigation Act but that one investigation had been conducted by a board appointed by the Minister of Labor. The existing law is confined to the provisions of the Criminal Code.

Blazing Flanges and Copper Pipes

Written for Sanitary Engineer by O. W. KOTHE, Principal St. Louis Technical Institute, St. Louis, Missouri



Brazing Flanges and Copper Pipes.

A FEATURE of interest to the coppersmith is to make flanges and braze them on pipes.

At A of figure 9 we show a sectional drawing of how the flange fits to the pipe and the radius represented by R and r for describing the pattern B.

The turn down flange must be allowed on the inside of the small diameter indicated by r.

About the first step to start flanging is shown by sketch C, where with a flanging hammer the edges work down, then as at D the edges work over further into a right angle position by means of a stretching hammer as at E.

This prepares the flange for brazing to the pipe and, of course, the workman must see that it is perfectly true and round.

In brazing to prevent the spelter and borax from running through, a bed of clay is wrapped around the lower elge as in sketch F.

A torch is set on the bottom and the clay is heated with the flange from the bottom side, and when this is thoroughly hot the torch is blown over the top, so as to insure a good flow of spelter into the joint.

Sometimes the gas torch is not large enough, or the weather conditions do not work in harmony, and it makes it difficult to braze a flange.

In that case, by placing 2 boards as in sketch G Figure 9, the flame will be more confined to the spot desired and will braze more easily.

Observe the boards placed in a right angle position cause the heat waves to rebound, and in that way, prevent cold air currents from tempering with the blazing.

Another piece of work that is of interest and of common occurrence to the coppersmith is making pipe splices.

This can be done in a number of ways, as some prefer to stretch the outer pipe and insert the pipe in the offset as in sketch M.

Other workmen prefer to draw in the pipe to go on the inside and stretch the outside a trifle, as at M.

Still other workmen prefer to place a coupling around both sides as in sketch O, Figure 10.

This latter is no doubt the best, although there is no objection to the other ones when properly worked.

A flange is bent out of the top of either of these methods to form a ledge for placing the borax and spelter and enabling a better flow into the seam.

At times where the spelter flows away, it is best to place a small ledge of clay as in sketch P.

Then with a torch first heat the lower portion as in the first position and after that shift it to the upper ledge and heat the borax and spelter and cause a flow.

Where pipe is quite heavy, it takes an intense heat to heat the metal and braze the joints, but it is easier to do than on lighter metal, since a person is not so apt to burn a hole.

However, where large pipes of heavy construction are met with, then often an auxiliary heater as at R may be arranged.

A pipe clamp as at Q is made and on which flat plates are placed.

Over this a ring is set and is filled with charcoal.

The charcoal is helped along by means of the torch so that by means of the charcoal and the torch, a flow of spelter and a well brazed joint are secured.

All this requires considerable more looking after and attention than a person can tell in words.

(Continued on page 60)

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

NEW FIRMS

Picton, Ont.—H. A. Le Heup, formerly with McKelvey & Birch, Kingston, Ont., is now in business for himself here as a plumbing and heating engineer.

MOVES TO NEW PREMISES

Toronto.—G. R. Baker, sanitary engineer, has moved from 37 Lappin Ave. to 224 Adelaide St. West, where new and larger quarters have been opened up.

OBITUARY

L. C. Martineau, plumber, Montreal, is dead.

PLUMBERS' BASEBALL

In the Toronto Plumbing & Heating Supplies baseball league, the Standard Sanitary team broke into the win column at the expense of the Jas. Morrison Brass aggregation.

DOMINION INCORPORATIONS

Protectors Ltd. incorporated with capital of $200,000, head office Ottawa to manufacture plumbing apparatus, sanitary fixtures and accessories and be contractors for installation of such equipment. Incorporators include Charles Hopewell, contractor.

WESTERN ONTARIO NEWS

James Robb, Seaforth, Ont., wants prices on heating, plumbing and electrical work for new $4,000 bungalow.

Prices are wanted on heating and plumbing for $40,000 addition to the public school at Teeswater, Ont., W. E. Binning, Listowel, architect.

W. V. Charlton, 14 Cynthia St., London, Ont., wants prices on hot air heating, plumbing and electrical work for new store and dwelling to cost $9,000.

Dr. C. L. Huffman, Forest, Ont., will proceed shortly with erection of new $5,000 residence and wants prices on hot air heating, plumbing and electrical work.

Mrs. Hugh Day, 1006 Wellington St., London, wants prices on hot air heating, plumbing and electrical work for three new residences to be erected at a cost of $15,000.

Bert Ibbotson, St. George St., Fergus, Ont., will receive tenders until May 20, for hot air heating, plumbing, cistern, septic tanks and electrical work for new $6,000 residence.

Plans are being prepared and tenders will be called shortly for new $40,000 monastery building at London, Ont., for the Sisters of the Precious Blood, Sister Mary Agnes, secretary. Prices will be wanted on heating, plumbing and electrical equipment.

Donald Stuart of Windsor, Ont., has been appointed by the Board of Education at St. Thomas, Ont., to prepare plans for new heating system for Myrtle Street school and to supervise the installation. Board plans to instal a ventilating system later.

PLUMBERS GET INCREASE

Windsor, Ont.—The Windsor building trades workers have concluded wage agreements without a sign of a strike. Though reductions had been general, plumbers have obtained an increase of from 97½ cents to $1 an hour; sheet metal workers are working for 90 cents an hour, as in 1921.

"NEED MORE BATH TUBS TO KEEP BOYS ON FARM"

Brantford, Ont.—"If there had been more bathtubs and fewer automobiles there might be more boys staying on the farm," was the comment of a delegate at the Social Service Council of Ontario.

BORDEN CANADIAN COMPANY SOLD TO BORDEN COMPANY OF U. S.

Mr. Borden of the Borden Canadian Company advises that this company has been sold to the Borden Company of the United States who will take over the premises occupied in Canada. Mr. Borden has invented a new pipe threading tool which he plans to manufacture in Cleveland.

CONTRACTS AWARDED

Kitchener, Ont.—Knell & Co. have plumbing and heating contract for parish hall of St. Peters Church.

Kingston, Ont.—Howe & Hagerman have secured plumbing, heating and ventilating contracts for Coleman Ward school, Belleville, valued at $25,000.

Peterboro, Ont.—Ernest Hensley has plumbing and heating contracts for construction of the Western Clock Company's new factory on Armor Hill.

Chatham, Ont.—Joseph H. Steen of this city has been awarded the contract for the repairs to the sedimentation basin of the local waterworks. For some years the sedimentation basin has been filling in with earth, and it is now in a general state of disrepair.

DECLARES OPEN SHOP

St. Catharines Ont.—The master plumbers of St. Catharines declared "open shop" and set a rate of 80 cents per hour, which the men refused, holding out for 82½ cents. All the other building trades are back at work.

HALL-ZRYD FOUNDRY CO. MAKE BIG ADDITION TO PLANT

The Hall-Zryd Foundry Company Ltd., of Hespeler, Ont., find it necessary to build an addition to their plant to take care of increased business. This addition, when completed will give 5,000 extra square feet of floor space. Mr. Oscar Zryd, secretary-treasurer of this firm says that they have every confidence that it will take another 5,000 square feet to handle next year's business.

HOW SCHOOL FOR PLUMBING APPRENTICES IS CONDUCTED

The Industrial Association of San Francisco, in co-operation with the Master Plumbers' Association has opened a school for the training of plumbers. Each applicant for admission to the school has been rated according to his standing in an intelligence test and placed in one of three groups. Instruction and training of the first group, under the direction of a skilled master plumber, has already begun. At the end of two weeks, members of this group will go out on jobs or into the shops of the master plumbers for four weeks; and group two will enter the school. At the end of the second two weeks, members of group three will enter the school. At the end of the third two weeks, members of group three will go out on jobs or into the shops, and group one will return to the school for another two weeks of intensive instruction and training.

This method of two weeks in the school and four weeks on the job or in the shops of master plumbers, will be followed until each group has had a minimum of eight weeks of intensive training in the school. While attending the school (which is in session eight hours a day, five and one-half days a week) students will receive no pay. But while on the job or in the shops of master

plumbers they will be paid the regular apprentice wage of $2.50 per day. Through exercising care in the selection of the students and applying the intensive method of training described, it is believed possible to turn out competent journeymen plumbers in from a year to a year and a half—a saving of virtually three years over the old method.

MASTER PLUMBERS SEEK TO HAVE WAGE LOWERED

A committee of the Toronto Plumbers' and Steamfitters' Union is entering into negotiations with employers with a view to drawing up a wage agreement to take the place of the present agreement, which expires shortly.

Employers are seeking a wage reduction, and a committee from the union is gathering its data to meet the arguments of the employers.

PETERBORO PLUMBERS ARE VERY BUSY

Peterboro.—On account of a number of jobs under way plumbers in this city are finding it difficult to get men, according to Plumbing Inspector A. Metheral. As a consequence, the plumbers' rates have remained the same, 75c an hour, and there is little likelihood of any reduction while business continues brisk. "I have had plumbers asking me if I knew where they could get men. I don't know of any that are not working, and they may have to go out of town," said Mr. Metheral.

May is the busiest month so far this year, Mr. Metheral said. So far he has made 52 inspections which is about the same as last year. The peak will not be reached, however, till late in the summer when the plumbing and heating work in the large number of houses under way will be finished. Many new connections are being put in, Mr. Metheral said. So far this year 44 houses have put in fixtures and Mr. Metheral expects as the season has just started that as many more will be put in as last year, when the total was 142, as against 8 the year previous.

DISCUSS METHODS FOR WATERWORKS

Brantford Ont.—The annual meeting and exhibition of the Canadian Section of the American Waterworks Association, held for two days, came to a close with a moving picture exhibition at the Chamber of Commerce headquarters, of trenching and back-filing machinery methods. Three interesting addresses were delivered, the first by Norman R. Wilson, chief engineer, Brantford Waterworks, who spoke on the desirability of hydrant thread standardization: the second by Prof. Gillespie, Toronto University, who, with the aid of moving pictures, showed the methods of constructing delavaud cast iron pipe, and the third, by Mr. William Gore, C. E., Toronto, who spoke of the treatment of impure hard water. The election of officers resulted as follows: President, R. L. Dobbin, Peterboro; vice-president, F. A. Dollyn, Toronto; secretary-treasurer, C. D. Brown, Walkerville; trustees, J. J. Salmond, Toronto; R. H. Starr, Orillia, and Norman R. Wilson, Brantford.

CONTRACTS AWARDED

Mechanical Trades Co., Toronto, has plumbing and heating contracts for new High School at Birch Cliff, Ont.

R. T. Morrison, Summerside, P. E. I., has contract for installation of a water system and an up-to-date bathroom equipment for George Welsh, Ellerslie.

EDMONTON PLUMBERS REACH AGREEMENT

Edmonton, Alta.—The local committee of the Trades and Labor Council has ratified the arrangement concluded between the Plumbers' and Steamfitters' union and the operators. As a result of the settlement the trade has been stabilized for two years. One contract was signed by both parties setting the wage at 95 cents an hour from May 22 1922 until April 30 1923 a rate of 90 cents an hour being struck for the succeeding year. This affects approximately 50 members of the trade in this city, about 20 per cent. being steamfitters.

TO CHECK WASTE OF WATER

Peterboro, Ont.—In order to prevent wastage of water and to check up the water charges in houses and business places, the Utilities Commission is beginning an inspection of all premises. It is expected that to thoroughly cover the city, the services of several inspectors will be required for several months. The last inspection was made ten years ago, and at that time two men were busy for two months. The Commission for several years has accounted for the work being held over.

After spending money in filtering water the Commission reasons that it is a serious matter to have a high wastage continue. According to the waterworks officials the wastage in the city is tremendous. In their work they continually encounter leaking taps and fixtures. The Commission has now advertised its intention of cutting off service to water-users who do not remedy the faulty conditions, and an improvement is immediately expected.

BOARD OF CONTROL RECOMMENDS WAGE FOR PLUMBERS

A minimum wage of seventy five cents an hour for plumbers is what the Ottawa Board of Control has recommended to the city council for the fair wage schedule to be inserted in civic contracts.

The decision was reached at a special meeting of the Board at which were heard representatives of the master plumbers and also the business representatives of the journeymen plumbers. There was quite a wordy argument during the discussion between the master plumbers and the representatives of the men.

A letter from Local 71, Steamfitters and Plumbers, stated that no agreement had been signed but that 75 to 80 cents an hour was the wage paid. Mr. James Dalton, business agent for the Plumbers' Union, put up a big fight to have the wages left at 80 cents, the same as last year. He read the names of a number of master plumbers, many of whom were paying 80 cents an hour and none less than 75 cents.

W. G. Edge, one of the master plumbers, said that some of the men whose names were read out by Mr. Dalton were really journeymen plumbers who had just taken out a master plumbers' license.

Messrs. Edge, Chapman and A. Gauthier said some plumbers were getting 80 cents an hour, as it was customary to pay a little more to retain the best men.

Controller Balharrie said that the labor department had fixed its rate for plumbers at 75 cents an hour. In view of this and the letter from the Union, the board agreed that it should make the minimum 75 cents an hour.

IMPORTANT CHANGES IN TAXES AND TARIFF

(Continued from page 29)

tion of the status of such retailers as tinsmiths for taxation purposes the regulation says, "The excise taxes specified in this section shall not be payable on goods exported or on sales of goods made to the order of each individual customer by a business which sells exclusively by retail provided that the tax as specified in this section shall be payable on sales of goods manufactured for stock by merchants who sell exclusively by retail.

Enameled Ware

Enameled ware, agate, granite or enameled iron or steel ware, British pref. 20 per cent., intermediate tariff 27½ per cent., general tariff 37 per cent.

Tools

Under tools come axes, cleavers, hatchets, metal wedges, sledges, hammers, crowbars, cantdogs and truck tools, picks, mattocks and eyes or poles for same, tools of all kinds n. o. p. British pref. 15 per cent., intermediate 27½ per cent., general tariff 30 per cent.

Didn't Want Advice from Plumber:—Farmer Jones was visiting the city for the first time in some years and noticed a sign hanging outside the showroom of a sanitary engineer which reads, "Cast Iron Sinks." After reading the sign he turned to his wife and said, "Any d—— fool knows that."

"The Woods Are Full of Business"

For Sanitary Engineers Who Go After It

Making Good Headway Out of the Woods

"C & H" Pipe Joint Cement

is made according to special formula, goes three times as far as Red Lead. Does not bake or flake off. Sets at once. Joints easily separated after long service.

In a big mercantile organization a pessimistic director was advocating retrenchment and talking of business depression. Another director asked:

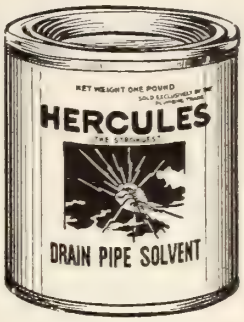
"Jim, how far can a dog run into the woods?"

"Why, as far as he wants to, I suppose."

"No," replied the colleague, "he can run only to the middle. After that he is running out of the woods."

Business, maintained, this director, had long since passed the middle of the woods into which the war had flung it. It was now "running out of the woods."

There is no question about it, business is coming back and the Sanitary Engineers should be prepared to get their full share. You should be prepared to handle that profitable Repair Work as well as the New Work. C. & H. Specialties are right in quality and right in price. You can pay more but you cannot buy better quality.

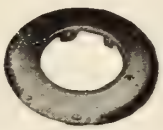


HERCULES Drain Pipe Solvent

Clogged Sinks, Closet Bowls, Bath Wastes, Sewers, etc. quickly cleared with Hercules Drain Pipe Solvent. Absolutely no fumes. Guaranteed not to injure plumbing fixtures or piping.

B and C FLOOR and CEILING PLATES

No. 15



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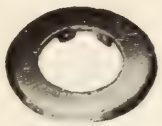


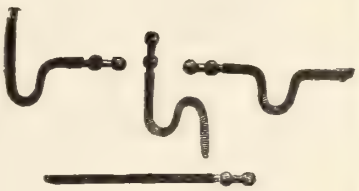
No. 17

thoroughly copper plated and nickel plated, suitable for twin connection or one pipe work.

Specially designed for Canadian pattern flush valves. Heavy vulcanized reinforced tops. Bottoms soft and pliable. Spuds will not pull out. "C. & H." bulbs are guaranteed to give satisfaction.

"C.&H." Cone Top Tank Bulbs

"C. & H." bending springs are made of special flat steel wire — do not kink the lead. A slight left turn and they are easily removed from the most intricate bend. They cost more but once you have used the "C. & H." spring you'll certainly use no other.



"C. & H." Bending Spring

W. H. Cunningham & Hill, Limited

269 West Richmond Street, Toronto

We have a Complete Stock of Plumbing and Heating Specialties

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

THE MARKETS AT A GLANCE

THE CURRENT sanitary and heating supply markets provide a number of interesting developments, both as regards price changes and special tendencies. Higher quotations on copper and brass tubing result from recent changes in the primary metal markets, while brass sheets and copper rods record a similar upward revision. Lower prices are recorded on wool packings, while radiators and boilers still have the new discount levels outlined in the last issue of Sanitary Engineer; keen competition for forward bookings of these products being stated as the prevalent factor in this development. Air cocks, steam and compression gauge cocks, are also reduced in price on eastern centres, while the revised discounts on soil pipe fittings now bring quotations on such lines to a more uniform level with other distributing markets. Western centres record an advance in Lunkenheimer valve prices. Further slight increases are noted on several scrap materials, the firmer tone in this direction having arisen through more consuming interest in iron and steel and copper grades. Although wrought piping is listed among steel items at present recording a firm undertone, it is stated in some quarters that the announcement of a lower tariff may slightly ease the current situation. Enameled ware is also under a tariff change, although only to the extent of 2½ per cent. British preference, while wrought iron tubing is revised five per cent., both on the preferential and general tariffs, for sizes four inches in diameter and under. There is a slightly better tone in the asbestos markets, but improvement is small and disappointing considering the season of the year. Closet outfits and fixtures remain at recently revised levels, the lower quotations being expected to result in more confidence throughout the trade, thus to some extent, removing the desire to shade prices. Range boilers make gradual progress, but the distribution is described as spasmodic. Seasonal activity is recorded in corrugated sheets, eavestrough, conductor piping, and pipe fittings. The rise in virgin metals serves to stiffen the tone of lead products, while consuming interest in certain ingots now shows a decided increase. The reflection of general building activity continues one of the principal elements in plumbing and steam-fitting markets. A brisk movement has been recorded in numerous sanitary and heating materials, as well as other products required in construction work. Such improvement has resulted in a firmer market trend on various lines, with higher quotations in specific instances.

MONTREAL MARKETS

MONTREAL, May 30.—Revisions in discounts on soil pipe and fittings attract attention on the local market for plumbing and steam-fitting supplies. Both products are advanced in price, pipe discounts being lowered five per cent. on all sizes, while fittings, up to six inch, are now quoted less fifty per cent. Higher quotations also appear on both ferrous and non-ferrous metals on the scrap markets. In the waste market, wool packings are reduced in price, the highest grade one cent, the medium and lowest grades two cents per pound.

The Government budget is of interest to the trade whereby wrought iron pipe and many lines of tools have reduced tariff rates. Wrought pipe has been very firm in recent weeks and this change may ease the tone of the market to an extent. Competition is still keen in iron and steel, and there is still some variation in local quotations, but with continued improvement in the undertone of the industry a more settled condition is anticipated in the near future. Lead products are slightly firmer owing to a stronger tendency continuing in primary metals. Enameled ware is a little more active, sales being stimulated by building operations, and ingot metals record further gains, copper, spelter and lead now being quite firm.

METALS STIFFEN LEAD PRODUCTS MARKET

Montreal.

Metals in primary circles continue to strengthen the undertone of finished lead and zinc products. The market for these lines has remained fairly steady since the revision of a few weeks ago, ingot metals having been much improved generally. During the past few weeks however, there have been gains made. It is pointed out by manufacturers that this has a tendency to strengthen solders more than other lines, while other products are steady to firm owing to a better tone in the market in general. Trade is described as steadily improving with increased operations in building circles.

Following are unchanged quotations:

LEAD AND ZINC PRODUCTS—	
Lead pipe, per 100 lbs.	12 00
Lead waste, per 100 lbs.	13 00
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	17½% off.
Lead wool, lb.	0 13½
Lead sheets, 2½ lbs.	0 10
Lead sheets, 3 to 3½ lbs., sq. ft., lb.	0 09¾
D., 4 to 8 lbs., sq. ft.	0 09
Cut sheets, ¼c. lb. extra and cut sheets to size, ¾c. lb. extra.	
Solder, guaranteed, lb.	0 25½
Do., strictly, lb.	0 23½
Do., commercial, lb.	0 20½
Do., wiping, lb.	0 21½
Do., wire, lb.	0 33½
Zinc, sheets, casks	0 11
Do., broken lots	0 11½

FURTHER REVISION IN MOST SCRAP METALS

Montreal.

A general further advance is given on most lines of scrap metals, this being the second revision in an upward direction in recent weeks. The present changes affect both ferrous and non-ferrous metals, the latter however showing price increases of more marked proportions. Yellow and red brass are increased one-half cent per lb., light and

(Continued on page 48)

You'll Not Fear Competition With This Splendid Furnace Line

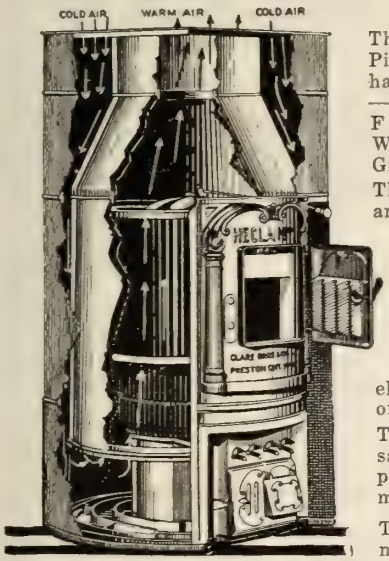
—*a style and size for every selling need*

EVERY dealer knows that the product with the important exclusive selling points is the one that's most easily sold.

That's why hundreds of progressive dealers throughout Canada sell Clare Bros.' Furnaces. There's a style and size to meet every prospect's needs—there are exclusive features which the prospect can readily see make for additional comfort as well as effecting a considerable saving in fuel.

Every Clare Bros. product, too, is built in a quality manner. You can be sure when you sell a Clare Bros. Furnace that it will stand up to every claim we make.

HECLA Pipe and Pipeless
SUCCESS Pipe and Pipeless
HILBORN Wood Furnace



The Hecla

The Hecla Furnace, both in Pipe and Pipeless styles, has four big talking points—Steel Ribbed Firepot, Fused Joints, Circular Water Pan and Individual Grate Bars.

The Steel Ribbed Firepot, an exclusive Clare Bros. feature, gives three times the heat radiating surface—positively saves one ton in seven.

The Fused Joints, another exclusive Clare Bros. feature, absolutely eliminate all leaks of gas or dust.

The Circular Water Pan saves coal—ensures the proper degree of healthful moisture in every room.

The Individual Grate Bars make it easier to shake down.

The Success

With the success you are able to meet the competition of the low-priced furnace. With our large plant and big production we are able to build furnaces at low cost and still maintain **quality** in the products.

Like the Hecla, the Success has the Patent Fused Joints. You can guarantee no gas, no dust, no smoke. The Success is a standard furnace construction that will give good service.

The Hilborn

For the prospect who desires a wood-burning furnace the Hilborn offers strong recommendations. It will last a lifetime. It is the furnace that built our reputation for making good heating appliances. Made in two styles and five sizes. Simply and effectively constructed. Where wood is still to be had no furnace will give more comfort or more economical heating than the Hilborn.

The Big Furnace Season is Here

You can meet every demand for furnaces in your community—meet it better—with this splendid line. You can **increase** your furnace business—build up one—with it. Write us to-day for further information and details of our dealer proposition. Don't delay—every day now sees furnace sales made. Send a postcard now.

Clare Bros., & Co., Ltd.

Preston, Ont.

Winnipeg, Saskatoon, Calgary, Edmonton, Vancouver.

MONTREAL MARKETS
(Continued from page 46)

heavy copper one-quarter cent. In iron and steel scrap, boiler plate, wrought iron, wrought pipe, heavy melting steel, malleables and No. 1 machinery cast are all advanced one dollar per ton.

The upward trend in prices is said to reflect the improvement in the market during recent weeks. What is most encouraging is the indication that foreign markets are opening, to an extent at least. Reports from overseas are to the effect that war material is dwindling and what remains is apparently being held pending higher market levels. On this side, there is an increased demand for iron and steel scrap, no doubt assisted by results of the coal strike. Whether the general improvement will continue during the summer months is considered by dealers as problematic, but from present indications the better feeling seems of a healthier nature than has been evident for some time past. Following are quotations:

SCRAP—	
Automobile Tires	0 50
Rubber Shoes	0 02¾
Yellow brass	0 06
Red brass	0 08¾
Light brass	0 04
Scrap zinc	0 03½
Lead, heavy	0 04
Lead, tea	0 02¼
Light copper	0 08½
Heavy copper	0 10¾
Wrought iron, R. Rd., No. 1 per gr. ton.	10 00
Malleable scrap (ton)	9 00
Pipe scrap (ton)	6 50
Heavy melting steel	9 00 to 9 50
No. 2 busheling	8 00
Boiler plate	8 00
No. 1 machinery cast	21 00

EASIER PRICES RECORDED ON WOOL PACKING

Montreal

In waste markets, wool packing is featured by a reduction in prices. The highest grade is reduced one cent per lb., and on the medium and lowest grades quotations are reduced two cents per lb. All grades of cotton waste, and wipers, are unchanged in price, with raw cotton reported as somewhat firmer in the past week or so. Prevailing quotations are as follows:

COTTON WASTE—Cream polishing, 18c. per lb. White—XXX extra, 16c.; XX grand, 15c., XLCR, 14c.; X Empire, 13c.; X press, 11½c. Colored—Fancy, 13½c; Lion, 12c; Popular, 9c.

Wool Packing—Arrow, 24c.; Axle, 20c.; Anvil, 16c.

Engine Wipers—White cotton, 20c; colored cotton, 14c.

STILL VARIATION IN SHEET QUOTATIONS

Montreal.

With the undertone of the sheet markets, especially black and galvanized sheets, remaining in a firm position, there is still a variation in quotations among distributors. Many dealers have advanced galvanized prices in recent weeks because of the stronger tendency in the market, but a few distributors are maintaining former price levels. There is keen competition in sheets, and notwithstanding the stronger undertone, prices are still shaded in certain quarters in an endeavour to secure more business. Stocks, however, are much lighter than they were during the quiet earlier weeks, and with a continuation of prolonged deliveries may bring about the required remedy for the present unsettlement. Importers of English sheets state that an active demand continues, with a marked improvement also noted in the tone of the market overseas. Following are average local prices on sheets:

BLACK SHEETS—		
10 gauge	4 00	4 50
12 gauge	4 10	4 60
14 gauge	4 40	4 70
16 gauge	4 50	4 80
18-20 gauge	4 55	5 05
26-gauge	4 60	5 20
22-24 gauge	4 65	5 25
28 gauge	4 75	5 35

GALVANIZED SHEETS—		
10¾ ounce	6 65	7 10
28 gauge	6 25	6 70
26 gauge	5 95	6 35
22-24 gauge	5 80	6 10
20 gauge	5 65	5 95
18 gauge	5 65	5 85
16 gauge	5 50	5 80
14 gauge	5 35	5 75
12 gauge	5 20	5 75
10 gauge	5 10	5 75

English Standard—	Queen's Head.	Fleur-de-lis
28 gauge	7 25	7 00
26 gauge	7 00	6 75
24 gauge	6 40	6 35
22 gauge	6 05	5 90
18-20 gauge	5 35	5 75

NOTE—These prices are for full bundles; an extra charge of 25c to 35c per 100 lbs. is made for broken lots. Extra for sheets 4 ft. wide, 50 cents per 100 pounds. Extra for sheets 3 ft. wide, 28 ga. and 10¾ oz. 25 cents per 100 lbs.

CANADA PLATES—	
Dull.	
18 x 24 x 52s	5 40
18 x 24 x 60s	5 50
18 x 24 x 75s	5 65

WELSH CANADA PLATES—	
Polished.	
18 x 24 x 52s	7 25
18 x 24 x 60s	7 50

BRIGHT TIN PLATES—	
28 x 28 x 100 lbs., bases	13 50
20 x 28 IC., 112s	14 00
20 x 28 IX, 112s	16 00
20 x 28 IXXX, 56s	9 25
20 x 28 IXXX, 56s,	10 00

TERNE PLATES—	
20 x 28 IC, 112s	14 50

ENAMELED WARE MOVING IN BETTER VOLUME

Montreal.

Enameled ware products are said to be moving fairly well at present, the improvement in recent weeks being well maintained. There is little or no change recorded in primary markets, and following are prevailing prices:

ENAMELED WARE—			
Sinks, roll rim—			
18 x 30			$23 00
Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$ 7 50	$ 7 40	$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70
Bath tubs, rol rim, 4 4½, 5 feet, 24 to 30 in. wide.			51
Bath tubs, 5½ feet,			57 10
Lavatories—			
17x19 in. Apron F139 or P4045			15 30
18x24 in. Apron F154 or P3845 or P3847			23 60
18x21 in. Apron F169 or P4205			17 60
17x19 in. Roll rim. F241 or P4345			12 60
Less 33 1-3 per cent.			

TROUGH AND PIPE IN GOOD DEMAND

Montreal

Each succeeding week brings a noticeable improvement in sales of eavestrough, conductor pipe, and sundry lines, dealers now describing the movement as quite satisfactory and comparing favorably with last year. This betterment has been particularly pronounced in the past two weeks, and a continued brisk trade is anticipated during the summer months. The undertone of the market is little changed, the firmer tendency still being apparent. List prices and discounts are as follows:

EAVESTROUGH—
in., $16.90; 10 in., $18.70; 12 in., $22.20; 15 in., $29.80; 18 in., $37.80.

O.G. Square bead, per 100 ft.: 8 in., $15.90; 10 in., $17.70; 12 in., $21.20; 15 in., $28.80; 6 in., $36.80.

Discount 70|10 per cent.

Conductor Pipe, Round. Plain and Corrugated, per 100 ft.: 2 in., $18.40; 3 in., $23.30; 4 in., $29.60; 5 in., $40.00; 6 in., $49.00.

Discount 70|10 per cent.

CONDUCTOR ELBOWS—
Plain or corrugated, price per doz.
2 in., $5.25; 3 in., $6.00; 4 in., $10.50; 5 in., $24.00; 6 in., $29.00.

Discount 60 per cent.

FAIR DEMAND EVIDENT FOR PIPE FITTINGS

Montreal.

There is little or no change in pipe fittings, current demand continuing in fair seasonable proportions, and prices remaining unchanged. Orders are now said to be slightly larger, dealers apparently experiencing a better demand from construction activities. Following are unchanged prices and discounts:

PIPE FITTINGS—	Per Cent.
Cast iron fittings	30
Bushings, cast	32
Bushings, malleable	32
Flanges	40
Plugs	30
Flange unions	30
Malleable unions	47
Dart unions, black	33
Do., galvanized	13
Nipples, ⅛ to 4" close and short	60
Do., long	65
Do., 4½ to 8" close and short	50
Do., long	55
Couplings, 4" and under	30
Do., 4½" and larger	10

Pound Goods —	Blk.	Galv.
Class A	0 54	0 67
Class B	0 20	0 28
Class C	0 13	0 20

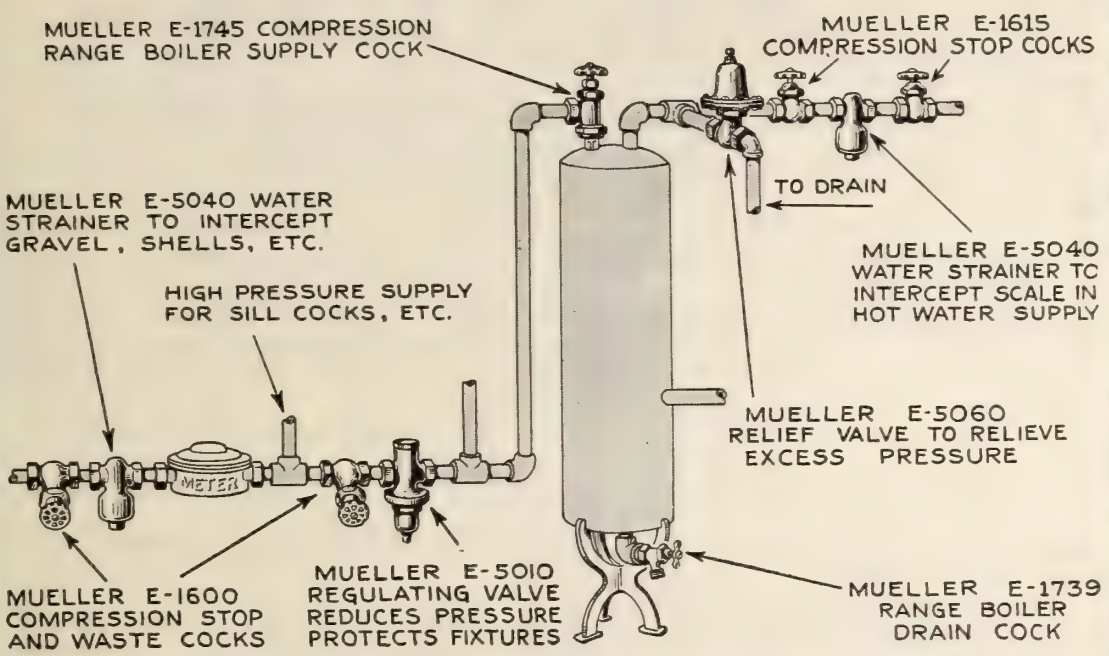
CLOSET OUTFITS REMAIN AT RECENT REVISION

Montreal.

Closet combinations and fixtures are unchanged since the revision of two weeks ago. This line also registers a fair volume of business, building stimulating sales considerably in recent weeks. Competition is still keen, although the new lower prices are expected to improve the situation, eliminating price-shading, at least to some extent. Following are current quotations:

CLOSET COMBINATIONS—	each
Closet, standard low down outfit	$25 00
Do., post hinge seat	26 00
Do., oak vitro, back strip seat	27 75
Do., oak vitro, post hinge seat	28 40
Do., china tank and back strip seat	28 50
Do., china tank post hinge seat	29 50
Do., vitro white with post hinge seat	30 75
Reversible trap bowl, less spud	11 25
Wash down bowl, less spud	10 00
Richelieu bowl	9 00
Siphon jet bowl	16 25
Extra for spud	0 60
Add for ⅜ in. valve on supply pipe	1 25
Add for bar hinge	No extra
Deduct for supply pipe	0 80
Deduct for floor hinge	0 60
Wood strip seat and cover	3 05
Post hinge seat and cover	4 25
Oak or oak vitro tank, with fittings, less seat	14 25
White vitro, vitreous china or enameled iron tank, with fittings, flush elbow and supplies, less seat	18 50

(Continued on page 50)


MUELLER E-1745 COMPRESSION RANGE BOILER SUPPLY COCK
MUELLER E-1615 COMPRESSION STOP COCKS
TO DRAIN
MUELLER E-5040 WATER STRAINER TO INTERCEPT GRAVEL, SHELLS, ETC.
HIGH PRESSURE SUPPLY FOR SILL COCKS, ETC.
MUELLER E-5040 WATER STRAINER TO INTERCEPT SCALE IN HOT WATER SUPPLY
METER
MUELLER E-5060 RELIEF VALVE TO RELIEVE EXCESS PRESSURE
MUELLER E-1600 COMPRESSION STOP AND WASTE COCKS
MUELLER E-5010 REGULATING VALVE REDUCES PRESSURE PROTECTS FIXTURES
MUELLER E-1739 RANGE BOILER DRAIN COCK

Mueller Goods for Range and Gas Water Heaters

This illustration shows how to make an installation that will give perfect and permanent satisfaction.

Note the different *MUELLER* items—each listed by its catalog number. Keep this diagram for future reference and consult it when you have a similar job. It will enable you to order the correct equipment and to install it properly.

It pays to install *MUELLER* goods—pays you and pays your customer. You—because every fitting is perfect and you save time. Your customer—because every item is dependable and he saves worry.

Write for detailed information and prices.
Mail orders given prompt attention.

H. MUELLER MFG. CO., LIMITED, SARNIA, ONT.

Water, Plumbing and Gas Brass Goods and Tools.

American Factory at Decatur, Ill., U. S. A. Branches, New York and San Francisco

Mueller Metals Co., Pt. Huron, Mich., Makers of "Red Tip" Brass Rod; Brass and Copper Tubing; Forgings and Castings in Brass, Bronze and Aluminum; Die Castings in White Metal and Aluminum; also Screw Machined Products.

MONTREAL MARKETS

(Continued from page 48)

REVISED DISCOUNTS ON SOIL PIPE AND FITTINGS

Montreal

Through a revision in discounts, quotations on both soil pipe and fittings are now advanced. The 2, 3, 5 and 6 inch pipe is now quoted less 40 per cent., former discount being 45 per cent., while 4 inch is changed from 50, to 45 per cent. Fittings, up to 6 inch, are now less 50 per cent., formerly being 50 and 10 off, and 8 inch are now 20 off. Firmer prices on these products reflects the stronger tendency in practically all lines of iron and steel, and local price levels, also, were considered comparatively low with other markets previous to this revision. Prevailing discounts are as follows:

SOIL PIPE—	
2 and 3 inch	40%
4 inch	45%
5 and 6 inch	40%
8 inch	20%
Fittings—	
2 to 6 inch	50%
8 inch	20%

COPPER AND BRASS GOODS AGAIN FIRMER

Montreal.

Copper and brass rods, sheets and tubing are again reported as considerably firmer, the easier tendency, noticeable in other outside markets a few weeks ago, making little or no impression on domestic markets. Copper in primary circles shows continued strength both in the U. S. and London, and on the whole moderate improvement has been made. The current buying movement in the finished products is fair, sheets, both copper and brass, being somewhat more active than other lines. Following are unchanged prices:

	Base.
BRASS—	
Sheets, base	0 24
Rods, base ½ to 1 in., round	0 22
Tubing, seamless, base	0 30
F. o. b. Montreal.	
COPPER—	
Rods, ½ to 2 in.	0 29
Soft sheets, plain, 16 oz., and heavier	0 32
Plain tinned, 16 oz. and heavier	z0 36
Polished, and tinned, 16 oz. and heavier, lb.	0 41
Tubing, lb.	0 32

Above prices are full sheets and bars. Cut sheets and bars are 5c. per lb. higher.

NO FURTHER CHANGE IN RADIATORS AND BOILERS

Montreal.

No further change is recorded in radiators, hot-water and steam boilers since the revision of two weeks ago when an extra discount was added to quotations of both lines. Further price developments are expected in some quarters in the not far distant future, but just what action will be taken, and the time of same, is very uncertain. The chief reason for anticipating a further change is undoubtedly because the recent revision was made when a firmer undertone was evident in the market. Lower prices would, even for a stated time, allow further liquidation of stocks, thus remedying the recent unsettlement caused by keen competition. The movement of boilers and radiators is said to be seasonably fair, but many orders now being received are for later delivery, buildings under construction not requiring supplies until later in the summer months. Inquiries for contemplated building are also coming to hand in encouraging numbers at present.

RADIATORS AND BOILERS—

Dadiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

45 in. to 38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in, $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $160 Discount 59 and 7½% for hot water and 60 and 7½% for steam.

Wall Radiators—5 ft., $1.25; 6 ft., $1.10; 7 ft., $1.05; 9 ft., $1.05; 12 ft. $1.05. Discount 56 7½%.

Boilers—Round hot water boilers, low base only (high base discontinued); sizes from 0 to 10, 64 10% off list.

Square or sectional hot water or steam boilers, 15-in., 20 and 10 per cent.

For Ontario Government trimmings add 5 per cent.

Square or sectional steam boilerfs, 19 in. to 36 in., 20 and 10 per cent.

Square or sectional water boilers, 19 in. to 36-in., 20 and 10 per cent. Ontario Govt. trimmings, 10 and 10 per cent. discount.

Round steam boilers, standard trimmings, 28 and 10 per cent. off. Ontario Government trimmings, 25 10 per cent.

All prices f.o.b. Toronto, Montreal, Guelph, Hamilton, St. Catharines or Brantford.

COMPETITION EVIDENT IN IRON AND STEEL

Montreal.

Although current business in iron and steel is again described as fairly good, and a more optimistic outlook for future trade expressed, there is a little unsettled feeling again evident on the local market. The recent advance in quotations announced by local producers was adopted by most distributors who revised their base price from $2.65 to $2.90. At the time certain firms did not increase their price levels, but it was felt that the new quotation would be uniformly adopted in the immediate future as the undertone of the market was undoubtedly very firm. Keen competition, however, still exists, and there is a variation in prices ranging from $2.75 to $3.00 base. The lower quotation is by no means general, and according to one local dealer is only quoted for larger business. Fundamentally the market is still firm, with the following quotations most generally given:

IRON & STEEL—	
Common bar iron, 100 lbs.	2 90
Refined iron	4 40
Iron finished machinery steel	2 95
Mild steel	2 90
Single reeled machinery steel	5 00
Band steel	3 25
Spring steel	4 50
Sleighshoe steel	2 90
Tire steel	3 10
Toe calk steel	3 80
Harrow tooth steel	3 05
Mining tooth steel, per lb.	0 20½
Black Diamond tool and cast steel	0 20½

NOTE—Refined iron is approximately $1.50 per 100 lbs. over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs extra.

SEASONAL ACTIVITY IN CORRUGATED SHEETS

Montreal.

With the stronger tendency continuing on flat galvanized sheets, the undertone of corrugated continues firm. Manufacturers and dealers state that this tendency, coupled with an improved demand, places the market for corrugated sheets in a much stronger position from week to week. The buying movement has gradually improved with the opening of favorable building weather, and dealers look with a degree of optimism on trade during the following months. Following are list prices and discounts:

CORRUGATED SHEETS—	Per 100 sq. ft.
No. 28 gauge	6 50
No. 26 gauge	7 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50

Less 10 per cent.

Lighter than 24 gauge and wider than 27 inches, 75c. a square extra.

RANGE BOILER MARKET MAKES GRADUAL PROGRESS

Montreal.

Current trade in range boilers is reported as being on a gradual improvement, the past two weeks bringing a somewhat brisker movement. Business in boilers has, however, been more or less spasmodic since early spring, and on the whole has been a little disappointing up to the present. Quotations are nominally unchanged, and following are list prices and discount:

RANGE BOILERS:—	
5 Gallon	$13.50
12 "	14.00
18 "	15.00
25 "	16.00
30 "	17.50
35 "	20.50
40 "	22.75
52 "	38.00
66 "	60.75
82 "	74.00
100 "	103.00
120 "	117.00
144 "	164.00
168 "	187.00
192 "	210.00

Discounts, Standard weight, 50 per cent. Extra Heavy, 40 per cent.

FAIR VOLUME OF TRADE IN COMPRESSION GOODS

Montreal.

A fair amount of trade is now in evidence in the various lines of compression goods, building activities stimulating sales to an extent especially in recent weeks. With continued progress in this direction, a steady volume of business is anticipated. There is no change in quotations, and following are present quotations:

Compression work, standard	45%
Fuller work, standard	30%
Quick opening compression bibbs	43%
Bath cocks, quick opening	41%
Bath cocks, compression	41%
Basin cocks, quick opening	46%
Flatway stop and waste cocks, standard	54%
Roundway stop and waste cocks, st'nd'rd	46%
Brass steam cocks, standard, ¼ in.	50%
Do., 2½ in. to 3 in.	43%
Radiator valves, standard	58%
Do., removable discs	58%
Globe, angle and check valves, standard	25%
Gate or straightway	25%
Emco globe valves	33%
Emco check valves	33%
Jenkins globe, angle, check and swing check	19%
Jenkins gate or straightway	25%
Jenkins iron body, globe and angle	15%
Jenkins iron body, gate	33%
N.P. "P" and "S" traps	40%

LOWER TARIFF ON WROUGHT IRON PIPING

Montreal.

Wrought iron and steel pipe quotations remain unchanged at list No. 54, with a stronger tendency still apparent in the undertone of the market. Wrought

(Continued on page 52)

Why are the

VULCAN

Pure Air Furnaces Superior in Radiation?

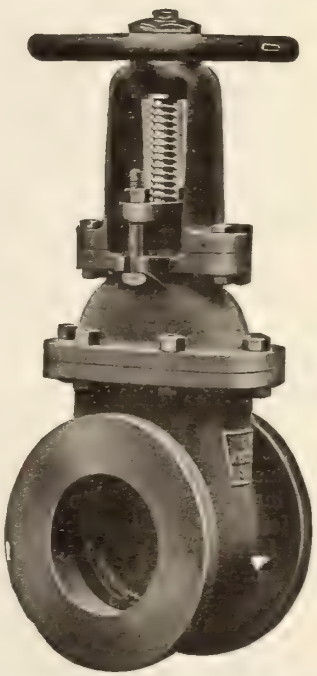
because they give off a more satisfactory amount of heat in proportion than any other furnace, on account of the greater total area of radiation surface.

Easy to operate
Profitable to install
Strongly constructed of heavy metal

THE VULCAN CO., LIMITED

London - - Canada

Reflect Credit on the Work
Use Kerr Valves



Kerr Valves make good. For every one installed there is a return of satisfaction and good-will, ample for all concerned. The man who has recommended and installed Kerr Valves is closest to the client, and, naturally, the lion's share of consequent new business goes to him.

KERR VALVES ARE SUPERIOR

Take the Kerr Gate Valve illustrated, for instance: It is well designed; strong and sturdily made; note the compact and narrow face-to-face dimensions; observe the accessibility of the stuffing box; the strong, generous flanges and the properly spaced bolting. Kerr Valves will help your business—ask for Catalogue No. 5.

The Kerr Engine Co., Limited

Valve Manufacturers

Walkerville, Canada

MONTREAL MARKETS

(Continued from page 50)

piping, however, is one of the lines listed in the Government budget as now having a lower tariff rate. Dealing with this, one local manufacturer stated that while the reduced duty would undoubtedly have a tendency to weaken the market, it was his opinion that the present firmer tone, and low stocks on hand, would offset any immediate effect that lower tariff charges on import would have.

SOME REVISED DISCOUNTS ON COMPRESSION GOODS

Montreal.

To those interested in these products, some revision has been announced in the discount quotations on air cocks, steam gauge cocks, and compression gauge cocks. The new levels are as follows:

Air cocks, reduced from fifty per cent. off list to sixty per cent.

Steam gauge cocks, from 45 per cent. per cent. off, to fifty per cent. off list.

Compression gauge cocks from 40 off list, to fifty-five per cent.

FURTHER GAINS MADE IN SOME METALS

Montreal.

Ingot metals have remained fairly firm with the exception of tin, which is still rather sluggish, with no apparent sign, as yet, of any reaction in the market in general. There has been a fair advance in certain metals in the past few weeks, and it is considered doubtful by some whether the present pace will continue. The sentiment, however, appears to be decidedly better.

TIN.—It would appear to be impossible for this metal to advance beyond the £150 mark in London, as it invariably recedes after a gain has been made. Until stocks are somewhat lessened, it is evident that no great advance in price is probable, consumption, especially in Europe, being still below normal. This metal is expected to improve but the time is evidently not yet at hand. Local price is unchanged at 34 cents.

COPPER.—There has been a steady advance in copper both in London and New York during the past ten days, and prices have now reached the highest level for some time past. London is firm owing to bullish reports from this side. Consumption in Canada is still much below normal, but the market is stiffer at 17½ cents for electro and 16¾ cents for casting.

SPELTER.—The situation of spelter in the U. S. A. is firm, and it is said to be difficult to buy prompt shipments at $5.15, East St. Louis. Some smelters have declined to quote altogether, but the position is, in all probability, accentuated by the coal strike, which affects both production and consumption. London is steady, but the advance in the U. S. A. has shut off imports from this side. Consumption is somewhat better in Canada and the market is firm at 7¾ cents for shipment from stock.

LEAD.—Both East St. Louis and London have touched the highest point for some months, and the position of lead seems as strong as ever. There have, however, been quite lengthy advances in both markets which can hardly continue indefinitely, and a temporary set-back would not be surprising. At present there is said to be no sign of this, and the market is firm at 7 cents.

ANTIMONY.—There are no special features of interest in connection with this metal, which is quiet and rather dull with quotations unchanged at 6¾ cents for Chinese, and 7½ cents for high-grade English.

ALUMINUM.—This metal also continues dull with quotations remaining at 24 cents.

TORONTO MARKETS

TORONTO, May 29.—A variety of developments are recorded on the current sanitary and heating supply markets, which make reports unusually interesting, although no startling revisions are recorded. The principal price change revolves around copper and brass products, where all tubing is advanced two cents per lb., while brass sheets and copper rods show an increase of one cent per lb. To those interested lower prices appear on wool packings. Radiators and boilers still have the new discount levels reported in the last issue of Sanitary Engineer, and although no direct announcement has been made regarding this development, the extra discounts are generally being quoted. The pipe fittings trade is seasonal, with the revised list and discount on malleable fittings stated as imminent not yet being available, although it is expected in the next few days. Orders for heavier gauges of corrugated sheets are still attracting special prices according to the individual specifications, but distributors look for an evening up in general situation consequent upon the improvement in the steel industry combined with seasonal market activity, and the resumption of uniform levels is therefore anticipated. An improved demand for closet outfits has been experienced recently, although a little variation still appears on the local markets in the quotations covering closet seats.

RADIATORS STILL HAVE NEW DISCOUNT LEVELS

Toronto

The additional discounts given on radiators and boilers are still apparent on the local market, and while it was stated that a further revision was generally expected in the near future, no announcement in this direction has yet been made. The trend of the market is more or less strong at this season of the year, due to the increasing demands for radiation products from new building interests. This year, brisk activity is also evident, but many bookings are for future delivery as construction has not yet proceeded to the stage where heating installation is required. Keen competition for a major portion of these forward bookings is generally described as the reason for the introduction of the new discount levels:

RADIATORS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60.

Discount on 2, 3, 4 and 5-column standard sizes, 59/7½% for water and 60/7½% for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 51/7½% for water and 52/7½% for steam.

Discounts on 1-column hospital size, water 33/7½%; steam 34/7½%.

Wall radiators—5 ft. $1.15; 6 ft. $1.10; 7 ft. $1.05; 9 ft., $1.05; 12 ft., $1.05. Discount 56/7½ per cent.

BOILERS—

Water:
Round 64/10% off list. Square 15/10%. cent. off list.

Steam:
Round 28/10% off list; square, 15/10%. cent. off list.

HIGHER PRICE ON BRASS AND COPPER TUBINGS

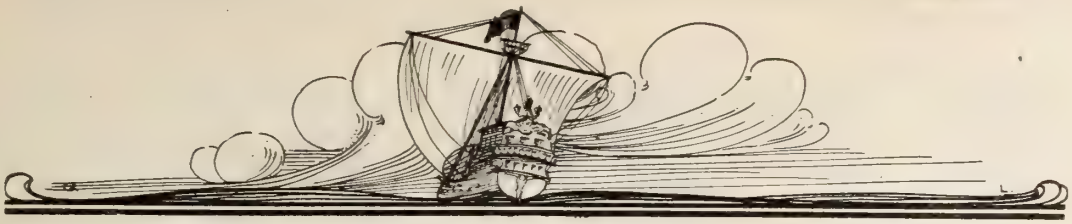
Toronto

Advanced price levels are recorded on brass and copper tubing, the increase being two cents per lb, while an advance of one cent per lb is announced on brass sheets and copper rods. Other finished products show no further variation in quotations, a firmer tendency however, having developed due to the recent trend in the primary copper markets where this metal has a stronger tone combined with certain price gains.

The huge quantities of scrap brass which have been apparent on the markets for some time past, are now reported as gradually diminishing, this factor also tending to firm up the current market for brass and copper goods. With regard to domestic prices, however, local distributors state that southern developments have not been of a very marked nature and are not yet reflected on domestic centres, although as stated, a stronger trend is noted. Current demand for these products is described as moderately fair, with the following quotations at present in effect:

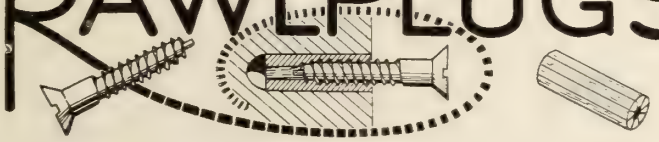
BRASS—	
Sheets base, per lb.	0 22
Rods, base, per lb.	0 19
Tubing, base, per lb.	0 25
COPPER —	
Rods, base, per lb.	0 28
Soft sheets, plain, 1 oz. and heavier, lb.	0 28
Do., plain tinned, 16 oz. and heavier, per lb.	0 35
Do., polished and tinned, 16 oz. and heavier, lb.	0 40
Tubing	0 29

(Continued on page 54)



Workmanship That Endures
Fix it With

RAWLPLUGS



A device which enables wood screws to hold in any material.

The Sanitary Engineer who is successful, who is a salesman, neglects no means of making each job permanently right. Jobs well done, that last, are real business builders.

The use of Rawlplugs means that the job is done right, and will stay right. Hence their rapidly growing popularity.

Now Using "Rawlplugs"

Jas. Ballantyne
D. A. Bethune, Ltd.
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Now Using "Rawlplugs"

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SALES AGENTS FOR ONTARIO

Dominion Engineering Agencies, Ltd.,
24 Adelaide St. E.,
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INVENTIONS LIMITED
SOLE AGENTS FOR
The Rawlplug Co., of Canada
SOUTHAM BLDG. 128 Bleury St., Montreal

The Rawlplug Co., Inc.
461 8th Avenue,
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PATENTED 1921.

ELECTRIC WATER HEATER

After looking at other Water Heaters inquire about the Supreme—makers of Gas and Electric Water Heaters.

Manufactured by

THE SUPREME WATER HEATER MFG. CO.

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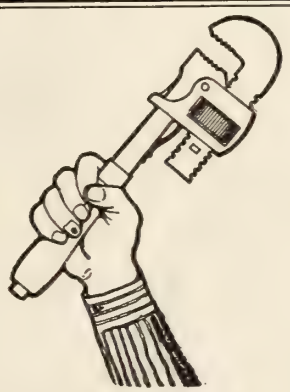


How Many Dollars
have you got tied up uselessly?

Every Sanitary Engineer has hundreds of dollars invested in tools. Every tool represents real money. Every time a tool breaks or something goes wrong with it, it represents a liability until it is put in working order.

Nearly every Sanitary Engineer has a good many dollars tied up in this way in tools which have gone out of order or been broken and which it is not thought worth while having repaired.

That's because they don't know that there is such an organization as The Pipe Tool and Repair Co. who make a specialty of making tools out of poor ones. From Halifax to Vancouver there are tools giving daily service that have been put back to work by the skill which many years' specializing on this particular class of work has given us.

Send along those broken pipe wrenches, dies and die stocks today and let us put them in shape for yo You'll find the cost reasonable and the work more than satisfactory.

THE PIPE TOOL REPAIR COMPANY
Adelaide St., West,
TORONTO, ONT.

CANADIAN SERVICE STATION FOR BEAVER TOOLS
Complete line of Beaver Tools and Parts always Carried in Stock

TORONTO MARKETS
(Continued from page 52)

LOWER PRICES RECORDED ON WOOL PACKINGS

Toronto

A reduction has been announced in wool packings, these products now being quoted at the following revised levels for the different grades:

Arrow, 24 cents per lb; Axle, 20 cents, and Anvil, sixteen cents per lb.

LOOK FOR SETTLED CORRUGATED MARKET

Toronto.

With the announcement of higher prices on flat galvanized sheets and the stronger tendency in steel markets generally, hope is still held out by distributors of corrugated sheets that the market in these products will now resume more settled conditions. A brisk demand is evident for the lighter gauges of corrugated at this season, while extra discounts are still being given according to the specifications for orders covering heavier gauges. While the nominal list remains unchanged, with the official discount at ten per cent., this condition has prevailed during recent weeks. As stated above, however, distributors look for an evening up in the general situation consequent upon the improvement in the steel industry, combined with seasonal market activity, and the resumption of uniform levels is looked for. Following are current nominal quotations:

CORRUGATED SHEETS—	Per 100 Sq. Ft.
No. 28 gauge	$6 50
No. 26 gauge	7 00
No. 26, U. S. gauge	8 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50

Less 10 per cent.

Lighter than 24 gauge and wider than 27 inches, 75c. per square extra.

FIRM TENDENCY IN TIN PLATE MARKETS

Toronto.

The tin plate market is still described as strong, although production is now rated at slightly lower than formerly. This movement on the part of producers, however, is stated to be generally attributed to the uncertainty of the coal strike's effect upon the future market trend. The interest in prospective prices is fairly strong, in view of the fact that production costs are said to be advancing. This difference, however, has resulted in the practical elimination of shading, and prevailing price levels are reported firm, on both primary and domestic centres. Whether this situation will remain apparent, however, is described as dependent upon the current demand for these products, combined with the trend of virgin metal which has lately been weakening:

PLATES, CANADA—	Per box
Dull, 60 sheets	5 30
Ordinary, 52 sheets	5 25
PLATES, COKE TIN—	
IC, 20 x 28, 112 sheets	12 50
IX, 20 x 28, 112 sheets	16 00
IX, 20 x 28, 56 sheets	8 50
PLATES, CHARCOAL TIN—	
IX, 20 x 28, 112 sheets	10 00
IXX, 20 x 28, 56 sheets	12 00
PLATES, TERNE—	
10 x 14 x 20, 112 sheets	11 50

SHEET BOOKINGS WELL AHEAD OF SHIPMENTS

Toronto.

Developments in the sheet markets are running along on more settled lines, with the strength of the general situation and the steady improvemet in demand, being factors now generally accepted. It is reported that current bookings keep well ahead of the shipments, with one result being that importers of English galvanized sheets record exceptionally brisk trade. Despite the coal strike, producers have been increasing output, and on account of the coal strike, steel demand is described as insistent. That a seller's market has replaced a buyers' market with unusual quickness even for steel products, has been an accepted fact for several weeks, but the question now remaining is how long this condition will be evident. It is noticeable that sheet producers claim that costs are higher, and such a contention is supported by rising prices on coal, coke, pig iron, scrap materials, etc. The building trade is responsible for a certain amount of business in galvanized sheets, this material being used for metallic roofings, eavestrough and similar purposes. The base price of $5.60 is now described as quite firm, with business during the month of May showing a decided advance over April. In the majority of cases this condition produces a brighter feeling in the trade. Current quotations follow:

BLUE ANNEALED—		
10 gauge, base	3 50	4 25
12 gauge	3 55	4 30
14 gauge	3 60	4 35
16 gauge	3 65	4 40
BLACK—		
18-20 gauge	4 05	4 80
22-24 gauge	4 10	4 85
26 gauge	4 15	4 90
28 gauge	4 25	5 00

Charge of 25c. per 100 lbs., is made for less than case lots. An extra 10c per 100 lbs. is also charged on sheets 26 in. wide.

GALVANIZED—	Queen's Head.	Fleur-de-lis.
28 gauge	7 50	7 00
26 gauge	7 25	6 75
24 gauge	6 85	6 35
22 gauge	6 40	5 90
18 and 20 gauge	6 25	5 75
Premier and Apollo—		
10 10¾ oz.	6 00	6 50
U. S. 28, base	5 60	6 10
U. S. 26	5 30	5 80
22 and 24	5 15	5 65
18 and 20	5 00	5 50
16	4 85	5 35
12 and 14	4 70	5 20

An extra is now charged on galvanized sheets, 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20 cents per 100 pounds. Other gauges show no change for different widths.

An extra 40 cents per 100 lbs., is charged for Keystone and Premier brands copper-bearing sheets.

SOUTHERN STEEL CENTRES RECORD HIGHER PRICES

Toronto.

While the local prices on bar iron and steel remain at the previous levels, the rising trend on southern primary centres is daily evident. Certain producers are now quoting advanced price levels, which in the ordinary course of events are naturally expected to be reflected on the domestic markets in the near future. Keen competition locally is described as the reason why the current quotations remain unchanged, although at the same time it is pointed out that these levels are very firm. Higher fuel costs are stated as assuming larger importance as a market factor, while the mills report that the costs of making steel have advanced further in proportion than the increased quotations to date. There are divergent views as to how long the present strength of the steel situation will last. Some domestic distributors expect a strong market throughout the year. Others express the opinion that much of the present strength depends on the southern coal strike, and therefore in the course of a few months the improvement in demand and firm market trend will gradually disappear. Such observers base their deductions on the principle that actual consumption of steel is not as heavy as the prevailing ratio of production. At the time of going to press, the average local quotations remained as follows:

IRON AND STEEL	
Mild steel bars, base	2 75
Mild steel bands, 3 16 in. base	3 25
Bar iron, base	2 75
Angle iron, base	2 85
Horseshoe iron	3 60
Tire steel	3 00
Spring steel	6 00
Crucible cast sheet steel	28.00
Toe caulk iron	4 00
Hoop steel	3.00
Norway iron	12 50
Sleigh shoe steel	2.85
Mining Drill steel	18.50
Cast tool steel, high grade	30.0
Do., do., Medium	18.00

MORE ACTIVITY IN SCRAP METAL MARKETS

Toronto.

The scrap material markets are described as firm, with the recent improved tone generally being maintained and prices holding at the higher revisions. This development is naturally attributed to the strength apparent in the virgin metal markets, this particularly referring to iron and steel scrap, as well as copper grades. Taken altogether, an increased degree of activity is noticeable, an increased degree of activity is noticeable, but although business is stated to be on the road to improvement, dealers report that consumers are not extensive purchasers at the advanced price levels. Scrap rubber is without change, remaining very quiet. Following are the usual averages of dealers buying prices for fairly large quantities:

SCRAP MATERIALS—		
Scrap Iron		
Gross Tons —		
Heavy melting steel (Hamilton)	$12 50	$13 00
Borings and turnings	2 50	3 50
Rerolling rails	10 50	11 50
Scrap pipe	6 00	7 00
No. 1 railroad wrought	10 25	11 25
Steel turnings (Hamilton)	7 00	7 50
Agricultural malleable	11 00	12 00
Railroad malleable	12 00	13 00
Net tons —		
No. 1 cast	18 00	19 00
Stove plate	12 00	13 00
Grate bars	11 00	12 00
Standard car wheels	14 50	15 50
Scrap Metals.		
Heavy copper and wire	10 25	11 25
Light copper	8 25	9 25
No. 1 composition	9 00	10 00
No. 1 comp. turnings	6 00	7 00
Light brass	3 00	3 50
Heavy yellow brass	5 00	6 00
Heavy lead	4 50	5 00
Tea lead	2 25	2 75
Scrap zinc	4 25	4 75
Scrap Rubber.		
Boots and shoes	2 25	2 50
Lumbermen's rubber boots	1 50	1 75
Auto tires	0 50	0 60
Solid tires	0 75	1 25

(Continued on page 56)

To Stimulate Sales—

MAKE THEM BUY

Rural dwellers are already sold on city conveniences and comforts. The 55 per cent. of Canada's population who live on the farms and in the small villages BUY over 50 per cent. of all Motor Cars sold in the entire Dominion.

WHY?

Because the automobile dealer actually demonstrates his car to his prospect.

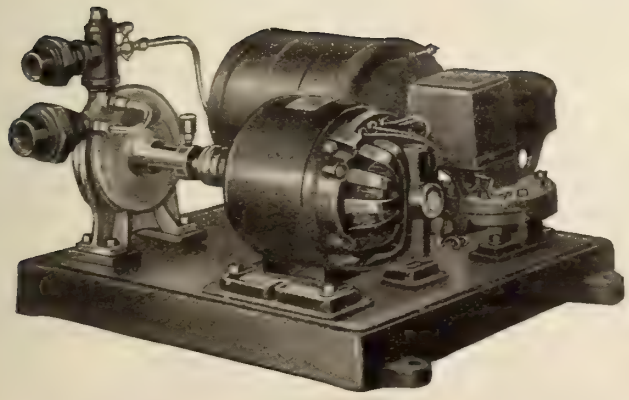
The live wire plumber who is getting the water system business to-day uses the very same method.

Put a Westco Demonstrator on the back of your car or truck and show it in your prospects' home. Let them see it operate.

Demonstrating sells system.

If you have bona-fide prospects in your territory and have not yet gotten your Westco demonstrator, write us immediately regarding our Special Demonstration Help Offer.

Write now for Selling Rights.



WESTCO PUMPS

LIMITED

QUEEN & ABELL STREETS

TORONTO - - ONT.

TORONTO MARKETS

(Continued from page 54)

MODERATE ACTIVITY IN COMPRESSION PRODUCTS

Toronto

Brass compression goods in general now record a better movement, but as one distributor described the situation to Sanitary Engineer, there should be an improvement at this season of the year and the present degree of activity was not considered exceptionally startling. Quotations on these products hold at recently revised levels, the seasonal trade serving to slightly strengthen these markets, coupled with a minor recovery in virgin copper and other raw materials. Prevailing price levels, therefore, show no variation, the following discounts remaining in effect:

VALVES—

	Per cent.
Compression work, standard	45
Fuller work, standard	30
Bath cocks, compression	41
Do., Fuller	25
Flatway stop and waste cocks, stand'd.	54
Roundway stop and waste cocks, std.	46
Brass steam cocks, standard ½" to 2 ins	50
Do., do., do. 2½ ins. to 3"	43
Globe, angle and check valves, std.	25
Mueller globe, angle and check	25
Mueller composition disc steam valves	33
J. M. T. valves, screwed	20|10
J. M. T. gate valves, screwed	25|10
Jenkins gate or straightway, screwed	25|10
Jenkins globe, screwed	19|10
Radiator valves, standard	58
Do., removable disc	58
Emco, J. D., rad. valves, screwed	33
Emco swing check, ⅜" and ½"	40
Do., Do., other sizes	33
Webber gate valves, screwed	33
Emco globe valves, std.	25
Emco globe valves, J.D., screwed	33
Basin cocks—	
No. 0 and 1 Fuller pattern	30
Quick opening No. 3633	50
No. 3623, plain or index handle	34

PIPE FITTINGS TRADE IN SEASONAL VOLUME

Toronto.

Pipe fittings of all kinds are now reported in seasonal activity, the demand for these goods being accentuated by current requirements in building circles. The general market tone is described as a little steadier, the prevailing discounts having held for a longer period, when compared with the changeable trend of previous levels. Revised list prices and discounts stated to be imminent on malleable fittings, have not yet been announced, but these are expected in the next few days. Following are current local quotations:

PIPE FITTINGS—	Per cent.
Cast iron fittings	30
Plugs, cast iron	30
Do., solid	30
Do., countersink	30
Bushings, malle.	32
Do., cast	32
Unions, ¼ in. to 2 in.	47
Do., ⅛ in., 2¼ to 4 in.	47
Flanged unions, std.	30
Flanged fittings	30
Dart unions, blk., ¼ to 2 in.	33½
Do., ⅛ in., 2¼ to 4 in.	28
Do., galvd., add to black	30
Nipples, blk., and galvd. ⅛ to 4 in. close and short	60
Do., 4½ in. and larger	50
Do., long, ⅛ in. to 4 in.	65
Do., 4½ in. and larger	55
Do., running thread	40
Couplings, 4 in. and under	30
Do., 4½ in. and larger	10

MALLEABLE FITTINGS—

New piece list, effective June 1, 1922. Discounts 70 and 5 per cent.

EXPERIENCE IMPROVED DEMAND FOR CLOSETS

Toronto.

A much firmer situation is now reported in closet outfits and fixtures by distributors of these products, the recent revision in prices, coupled with a noticeable increase in the volume of current inquiries having given rise to renewed confidence as regards future market activity. Trade conditions are described as on the road to improvement the extensive program of smaller building now apparent in almost every direction, reflecting to some extent in the call for these products. Prices are stated to be much more uniform, this being another recent development ascribed to the better activity now recorded in enameled sales generally. Following are prevailing quotations:

CLOSET COMBINATIONS, low down	each
Closet, standard outfit, oak	26 00
Do., with post hinge seat	26 50
Do., mahogany Vitro or Pussyfoot with mahogany post hinge seat and cover	28 75
Do., vitreous china, with oak post hinge seat and cover	28 75
Do., vitreous china, with mahogany post hinge seat and cover	29 00
Do., white Vitro or Pussyfoot, with oak post hinge seat and cover	28 75
Do., white Vitro or Pussyfoot with mahogany post hinge, seat and cover	29 00
Do., enamelled iron tank with oak post hinge seat and cover	28 75
Do., enamelled iron tank with mahogany post hinge seat and cover	29 00
Additions or reductions to above	
Add for reverse trap bowl	0 75
Add for syphon jet bowl	7 00
For ⅜ in. valve on supply pipe	1 50
Deduct for supply pipe	0 70
Deduct for floor flange and bolts	0 60
CLOSET BOWLS—	
Washdown bowl less spud	10 00
Reverse trap bowl, less spud	12 10
Syphon jet bowl, less spud	17 00
"Richelieu" bowl	10 50
CLOSET TANKS, low down or Pussyfoot tank, with fittings, less seat	13 10
White Vitro or Pussyfoot tank with fittings, flush elbow and supply	15 65
Vitreous china tank with fittings, flush elbow and supply	18 00
Enamelled iron tank with fittings, flush elbow and supply	18 00
CLOSET SEATS—	
Oak post hinge seat and cover	4 15
Oak wood strip seat and cover	3 50
Mahogany finish post hinge seat and cover	4 35

FIRMER TREND EVIDENT IN WROUGHT PIPING

Toronto.

While list No. 54 continues to govern local pipe markets, the firm tendency recently noted in this direction has continued to develop and the future position of wrought piping is described as very strong. This change is attributed to the increasing gains in the steel industry generally, an improvement that has been more or less reflected in practically all steel products. There is also the incentive of an improved demand for piping, however, at this season of the year, distributors stating that present business is fairly brisk and up to expectations. At any rate, current trade is generally reported ahead of last year, with more cheerful prospects regarding future activity. The upward trend referred to has been particularly prominent in southern pipe markets, but it is stated that domestic pipe has developed a firmer attitude in conjunction with, and not because of outside tendencies. However, the revised tariff on wrought piping may ease this market to a certain extent.

WROUGHT PIPE

Price List No. 54. December 22, 1921.

Standard Buttweld Pipe S/C

Size	Steel Blk.	Steel Galv.	Gen. Wrot. Iron Blk.	Gen. Wrot. Iron Galv.
⅛ in.	$6 00	$ 8 00	$	$ ....
¼ in.	3 84	5 94	7 20	9 30
⅜ in.	3 84	5 94	7 20	9 30
½ in.	4 85	6 46	7 31	8 93
¾ in.	5 87	7 71	8 86	10 70
1 in.	8 16	11 05	12 58	15 30
1¼ in.	11 04	14 95	17 02	20 70
1½ in.	13 20	17 88	20 35	24 75
2 in.	17 76	24 05	27 38	33 30
2½ in.	28 08	38 03	.....	.....
3 in.	36 72	49 73	.....	.....
3½ in.	47 84	63 48	.....	.....
4 in.	56 68	75 21	.....	.....

Standard Lapweld Pipe S/C

Per 100 feet.

Size.	Steel Blk.	Steel Galv.	Gen. Wrot. Iron Blk.	Gen. Wrot. Iron Galv.
2 in.	$21 46	$27,38	$31,08	$37 00
2½ in.	31,50	40 05	46 80	56 16
3 in.	41 31	53 55	61 20	73 44
3½ in.	48 76	65 32	72 68	89 24
4 in.	57 77	77 39	86 11	105 73
4½ in.	66 04	86 36	1 04	1 24
5 in.	76 96	100 64	1 21	1 45
6 in.	1 00	1 31	1 57	1 88
7 in.	1 33	1 76	2 02	2 45
8L in.	1 40	1 85	2 13	2 58
8 in.	1 61	2 13	2 45	2 97
9 in.	1 97	2 59	2 97	3 59
10L in.	1 82	2 40	2 75	3 33
10 in.	2 35	3 09	3 54	4 28

ENAMELED WARE ALSO IN TARIFF REVISION

Toronto.

The budget announcement with regard to reducing the British preferential tariff on enameled ware by 2½ per cent. has attracted some attention in market circles, in view of what effect this might have on future price tendencies on domestic products in this class. No variation has, however, been recorded in current quotations, it being pointed out that any such revision would be comparatively small and that the general tariff on these goods remains unchanged.

ENAMELLED WARE—			
Enamelled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.			51 40
Do., 5½ ft.			57 10
Lavatories—			
17x10" Apron F139 or P4045			15 30
18x24" Apron F154 or P3845 or P3847			23 60
18x21" Apron F169 or P4205			17 60
18x21" Roll Rim, F197, F199 or P4655-6			15 40
17x19" Roll Rim, F241 or P4345			12 60
Sinks, Roll Rim, 16x24 in.			18 10
Do., 18 x 30 in.			23 00
Do., 20 x 30 in.			24 70
Sinks, Flat Rim—	3 only	2 only	1 only
16x24	$7 60	$7 70	$7 80
18x30	8 50	8 60	8 70
20x30	9 70	9 80	9 90
Above prices, list, less 33 1-3 per cent.			
All steel enamel baths, 4 and 4½ ft.			$14 00
Do., 5 ft.			15 00
Do. 5½ ft.			16 75
These quotations are net.			

GRADUAL PROGRESS IN RANGE BOILER MARKET

Toronto.

Buying according to current requirements still appears to be the general rule in the range boiler market. Some improvement in demand for these products however, due to recent activity in building circles, has given a little better tone to the situation, but current conditions are described by certain manufacturers and distributors, as leaving plenty of room for improvement. This is

(Continued on page 58)

Drinking Fountains

White, Clean, Vitreous, Sanitary

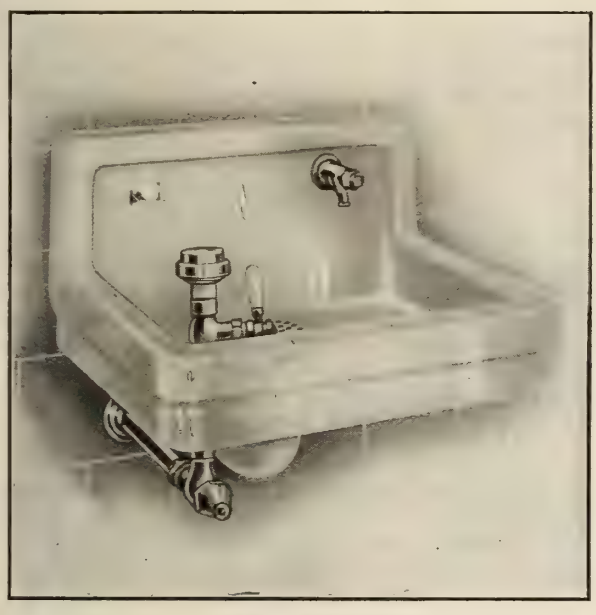


Plate 901

Dirt and germs will not readily cling to its smooth hard surface so that with a minimum of effort its original glistening whiteness will be retained after years of use.

The fittings illustrated are only suggestive. A variety of good sanitary bubblers are obtainable which will readily fit either of the patterns shown.

The moderate price at which these very desirable fixtures are furnished by us should ensure their installation in every public building.

The lustrous white clean surface of a Canadian Vitreous Drinking Fountain suggests the cool refreshing draught which can with safety be taken therefrom.

Canadian Vitreous China is the most thoroughly sanitary material of which a Drinking Fountain can be made. It is all clay, the same white, dense, substantial, strong, vitreous body through and through, with a beautiful hard, lustrous, live-white glaze surface, which cannot chip, crack, rust, discolor or deteriorate.

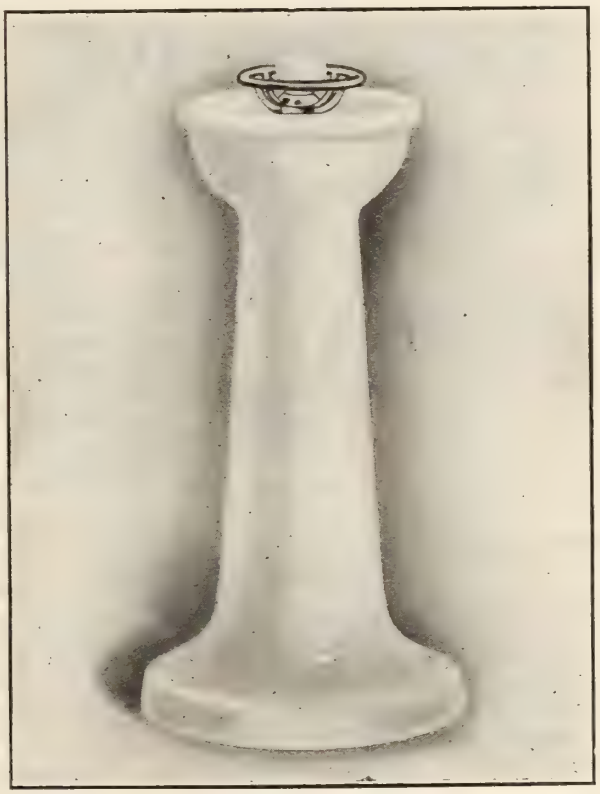


Plate 909

CANADIAN POTTERIES
LIMITED
SAINT JOHNS
QUEBEC

Sales handled exclusively through recognized jobbing houses

TORONTO MARKETS

(Continued from page 56)

expected to develop as the season advances, and with the more or less general adoption by the trade of the list prices and discounts, the tone of this market can be designated as advancing in the right direction. Following is the current unchanged list and discounts on standard and extra-heavy boilers:

RANGE BOILERS—

Size	List Price.
5-gallon	$13 50
12 to 15 gallon	14 00
18-gallon	15 00
25-gallon	16 50
30-gallon	17 50
35-gallon	20 50
40-gallon	22 75
52-gallon	38 00
66-gallon	60 75
82-gallon	74 00
100-gallon	103 00
120-gallon	117 00
144-gallon	164 00
168-gallon	187 00
192-gallon	210 00

Discounts, Standard weight, 50 per cent.
Extra heavy, 40 per cent.

IMPROVEMENT RECORDED IN SALES OF SOIL PIPE

Toronto.

While there still remains some variation between eastern and western distributing centres in the discounts on soil pipe and fittings, yet this is attributed to the difference in local conditions. Local manufacturers and distributors state that they are not anticipating any price developments, and discounts remain at the recent levels. Current trade in soil pipe and fittings is reported as fairly brisk, with special improvement in this direction having been noted during the last few weeks. During the earlier months of the current year, stocks did not move as fast as anticipated, and manufacturers now report that they are considering some curtailment in the ratio of production, supplies now being plentiful to meet the prevailing demand.

SOIL PIPE—

2 inch	40 per cent.
3 inch	40 per cent.
4 inch	40-5 per cent.
5 and 6 inch	40 per cent.
8 inch	net

FITTINGS—

2 to 6 inch	50'5 per cent.
8 inch	net

INTEREST IN METALS NOW SHOWS INCREASE

Toronto

The only element of outstanding interest in the ingot metal markets is the firm trend in lead, with slightly more interest in copper and spelter. No price developments have been announced on domestic centers, however, the recent changes on southern primary markets generally being of a minor nature and not of sufficient extent to reflect locally. Tin consumption is on the increase but production of this metal renders current stocks a detriment. Copper is reported with slightly more interest, while recent purchasing of aluminum by the automotive industry has caused a momentary spurt in certain market quarters. The brisk call for galvanized products at this season naturally reflects in the demand for spelter, although commitments are moderate.

COPPER—Recent buying of copper is reported to be less active, but the general tone of this metal is described as firm. Southern centres record a strong tendency with higher prices, but this development has not yet appeared on the domestic markets, current trading still being moderate, with the quotation of 17 cents available.

TIN—Statistically this metal leaves much to be desired. The visible supply of tin is described as too extensive to formulate a healthy tone to the market, and while there is reported to be a noticeable increase in consumption, production also keeps merrily on. It is therefore calculated that consumption of tin will have to continue right along at the present level in order to absorb the current output, without reducing the stocks on hand. Local prices remain at 35 cents.

LEAD—Lead is again the strongest metal in this group, with some price advances having been recorded in southern primary centres. The market is described as firm, with offerings limited in quantity. It is not yet apparent whether the general situation warrants higher prices, however, and domestic quotations continue to be in evidence at the previous level of $7.00.

SPELTER—The spelter market has registered some degree of improvement, but not to the same extent which has characterized lead. Purchases are in small amounts, recent reports noting that galvanizers are conservative in their commitments, probably owing to the coal strike. The general market tone is firm with domestic quotations remaining at $7.25.

ANTIMONY—This metal is stated to be colorless and generally uninteresting. The undertone has recorded little variation, while prices are also unchanged. The previous range of 6 and 7 cents, remains the average local price level.

ALUMINUM—The recent sale of more aluminum to the automotive interests in southern centres, naturally produced a brighter trend in these markets. The usual degree of improvement in aluminum at this season of the year is attributed to manufacturing requirements of the motor industry, but current prices have not changed, and there is no marked development in the average tendency. Domestic requirements are dull, with prices at 20 and 21 cents.

WINNIPEG MARKETS

WINNIPEG, May 29.—The reflection of increased building activity remains one of the principal elements in the market for heating and sanitary supplies. A better movement is recorded in many plumbing and steam-fitting materials, as well as other products, used in construction work. This improvement has tended to firm up quotations on many lines, the advance in Lunkenheimer valve prices being the chief prevailing change.

ADVANCED PRICES ON LUNKENHEIMER VALVES

Winnipeg.

Prices are quoted higher this week on Lunkenheimer valves through a revision in discounts. Following are the latest quotations:

LUNKENHEIMER VALVES—

Renewo, Globe and Angle	20 per cent. adv.
Ferrenewo, Globe and Angle	20 per cent. off.
Horizontal Check	9 per cent. off.

STRONGER TONE NOTED IN LEAD PRODUCTS

Winnipeg.

The lead market continues to show strength and outside centres have already advanced prices. Local prices are still the same, but an increase in the strength of the current market is noted. Following are the unchanged prices:

LEAD PRODUCTS—

	Per lb.
Sheet Lead, full rolls	0 10¼
Less than rolls	0 11
Bar Lead	0 08¼
Pig Lead	0 08
Block Lead	0 08¼

STEADY IMPROVEMENT IN FITTINGS TRADE

Winnipeg.

A steady increase in pipe fittings trade is noted during the past week. This is cheifly caused by the seasonable movement looked for at this time of the year, combined with a reflection of the increased call for pipe fittings required in construction work. If the brisk activity in the building trade now in motion, continues throughout the summer months, a very satisfactory season for these products is looked for. Following are the unchanged prices:

PIPE FITTINGS—

Malleable, Class A	65% off.
Do., Class B and C	70% off.
Unions	45% off.
Do. Dart. ¼ to 2	25 and 10% off.
Dart., ⅛, 2½ to 4	20% off.
Cast Iron Drainage	30 and 10% off.
Cast Iron Elbows, Tees, Crosses, Return Bends, Caps and Lock Nuts	25%
Reducers	30%
Bushings	30%
Plugs	25%
Wrought Couplings ⅛ to 4"	25%
Do., 4½" and larger	10%

WROUGHT NIPPLES—

Close and Short, up to 4"	50 and 10%
Do., 4½" and larger	40 and 10%
Long 4" and smaller	55 and 10%
Do., 4½" and larger	45 and 10%

MORE STRENGTH ADDED IN SHEET MARKETS

Winnipeg.

Many sheet distributors state that higher levels are generally looked for in the near future. It has been necessary for warehouses and consumers to book ahead to insure prompt shipments, due to the fact that the mill delivery cannot be depended upon. The demand is greater and shipments do not come forward quick enough to meet the im-

(Continued on page 60)

Two Great Values

There are no greater values of a publication as an advertising medium than its

Editorial Excellence

and as being a member of the

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These factors show that the paper is worth reading and how many people are reading it.

In both, the advertiser is vitally interested.

Sanitary Engineer invites the closest scrutiny. Its A.B.C. report is accessible to advertisers. No other Plumbing and Heating paper in Canada has submitted its circulation records to the Audit Bureau of Circulations.

Sanitary Engineer

143 University Ave. - Toronto

WINNIPEG MARKETS

(Continued from page 58)

mediate needs, as heretofore. The duration of the coal strike adds further strength to the sheet markets generally. Following are the prevailing prices:

STEEL SHEETS, BLACK—

10 gauge, $5.35; 12 gauge $5.40; 14 gauge $5.45; 16 gauge, $5.50; 18-20 gauge, $5.90; 22-24 gauge $6.00; 26 gauge, $6.10; 28 gauge, $6.40.

IRON GALVANIZED—

Premier: Apollo and "Fleur de Lis", 10¾ oz. or 28 Eng., $7.90; 28 Am. or 26 Eng., $7.50; 26 Am. or 26 Eng., $7.20; 24, $7.05; 22, $7.05; 18 and 20, $6.90; 16, $6.90.

STEADY MARKET TONE IN COTTON WASTES

Winnipeg.

The tone continues steady in the cotton waste markets. Trade in this line is reported as growing and a fairly good business has been noted for the past two weeks. Following are the unchanged prices:

WASTE	
Cream, polishing	0 29
WHITE—	
XXX Extra	0 18½
XX Grand	0 17½
XLCR	0 16½
X Empire	0 15
X Press	0 14½
COLORED—	
Fancy	0 15½
Lion	0 14
Standard	0 12*
Peerless J.	0 09½
Keen	0 09½

FIRM TENDENCY IN WROUGHT PIPING

Winnipeg.

List No. 54 remains the selling basis for wrought iron piping, with the undertone of the market still reported as firm. Business in this line is getting better and compares favorably with last year for the same period. Following are the prevailing quotations:

BLACK PIPE

F.O.B.	Winnipeg	Calgary, Edmonton, Lethbridge & Medicine Hat.	Saskatoon, Regina.		Brandon.
LIST NO. 54.					
⅛	$ 6 25	$ 0 28	$ 0 20	$ 0 17	$ 0 11
¼	4 52	0 47	0 34	0 30	0 19
⅜	4 67	0 62	0 45	0 40	0 26
½	5 95	0 94	0 67	0 59	0 38
¾	7 20	1 25	0 90	0 79	0 51
1	10 04	1 85	1 34	1 17	0 75
1¼	13 60	2 51	1 80	1 57	1 00
1½	16 26	3 01	2 15	1 88	1 21
2	21 88	4 04	2 88	2 52	1 62
2½	34 61	6 40	4 60	4 02	2 68
3	45 26	8 38	6 03	5 28	3 39
3½	58 88	10 12	7 20	6 30	4 05
4	69 75	11 97	8 53	7 46	4 80
4½	81 22	13 91	10 04	8 75	5 62
5	94 73	16 30	11 60	10 15	6 52
6	122 86	21 10	15 00	13 14	8 44
7	181 18	26 14	18 62	16 28	10 46
8L	190 38	27 50	20 00	17 50	11 25
9	267 05	37 60	26 96	23 59	15 16
10L	248 60	35 20	25 60	22 40	14 40

GALVANIZED PIPE

¼	$ 8 50	$ 0 28	$ 0 20	$ 0 17	$ 0 11
⅜	7 04	0 47	0 34	0 30	0 19
½	7 09	0 62	0 45	0 40	0 26
¾	7 99	0 94	0 67	0 59	0 38
1	9 41	1 25	0 90	0 79	0 51
1¼	13 50	1 85	1 34	1 17	0 75
1½	18 29	2 51	1 80	1 57	1 00
2	21 87	3 01	2 15	1 88	1 21
2½	29 43	4 04	2 88	2 52	1 62
3	46 54	6 40	4 60	4 02	2 68
3½	60 86	8 38	6 03	5 28	3 39
4	77 65	10 12	7 20	6 30	4 05
4½	92 00	11 97	8 53	7 46	4 80
5	105 60	13 91	10 04	8 75	5 62
6	123 15	16 30	11 60	10 15	6 52
8	159 70	21 10	15 00	13 14	8 44
7		26 14	18 62	16 28	10 45
8		27 50	20 00	17 50	11 22

BETTER MOVEMENT IN TROUGH AND PIPE

Winnipeg—

An improved movement is noticed in eavestrough and conductor pipe now the building season is at hand. A good trade is anticipated during the following months, with the undertone of the market little changed, although conditions are firmer since the stronger tendency in galvanized sheets became apparent. Following are the unchanged prices:

EAVESTROUGH AND PIPE—

Eavestrough per 100 ft., 8 in., $5.06; 10 in., $5.63; 12 in., $6.75; 15 in., $10.13.

Conductor pipe, 2 in., per 100 ft., $6.19; 3 in., $7.13; 4 in., $9.00; 5 in., $12.75.

BRAZING FLANGES AND COPPER PIPES

(Continued from page 41)

It takes real experience and several mistakes to enter before a person can appreciate the necessity of careful and sure workmanship.

The matter of brazing brass nipples to copper pipes, is not an easy task, since the brass nipples often melt as easily as the spelter does.

To overcome this, the brass nipple part is covered with clay as shown in sketch S.

This clay sort of protects the brass on the lower side.

A torch is first placed in position 1 to heat the clay and the pipe after which the torch is shifted to position 2 and the edges brazed, causing the spelter to flow.

Even though the top edge of the nipples becomes burnt, enough will adhere to the copper pipes, and as the spelter flows in the joint, a secure seam will be made.

But if the nipple is to be placed on the inside of the copper pipe, as is generally the case, then a little more difficulty may be met with in placing the clay.

Sometimes, it is necessary to fill the inside of nipple with clay as well as work it around above the ledge of copper pipe.

Otherwise, the treatment here shown may be applied.

Where brazed with the forge, then, extreme care must be taken in order not to melt the brass nipple, since the bottom of the pipe will become heated before the top, and in such cases it is often well to play the torch flame on top of the pipe.

This will average up the heat and cause the spelter to flow from the top downward.

At best, it is a ticklish job and requires some experience to know the color just before the spelter begins to flow, in order to prevent melting.

FOUNDATION OF PLUMBER'S SUCCESS

(Continued from page 24)

lower than that quoted in the supply firm's showroom. This practice, it was stated, tends to encourage the distrust which is all too common among buyers of plumbing equipment. The solution lay in better organization among the plumbers themselves and more attention paid to installation work than competition on prices on fixtures.

Premises Report Cards

Asked for an opinion regarding the use of premises report cards, this manufacturer thought it was all right for the master plumber himself to pose as an expert and make acquaintances with prospects and make recommendations for plumbing and heating but he did not think the worker was in his right role when going snooping around the prospect's home with the idea of looking for possible business for his employer. He thought such practice would only tend to further encourage distrust of the plumber and that such ramifications would lead to much misunderstanding. Then too, the operator might lose much of his prestige with the prospect by making expensive recommendations.

Dealing with the possibilities for business this manufacturer pointed out that much new building was now under way and the sale of plumbing supplies is increasing. Of course, on this type of work competition is keen, and advertising to architects was necessary to secure it. However, the greatest possibilities were said to exist in connection with existing properties, it being a recognized fact that in the cities and larger towns only about 25 per cent. of the property owners appreciated the necessity of having adequate equipment in connection with plumbing and heating, and in the rural districts there are great possibilities for the sale of rural water systems in addition to the other equipment required.

New Goods

COLEMAN "CRAFT" WRENCH

The Craft pipe wrench is the product of the Coleman Railway Supply Co. of New York City. This product is a self-adjusting wrench, with a patented self-locking double geared disc and saddle. To open the wrench, the saddle is pulled backwards as far as necessary. In operation, the wrench is placed so that the pipe is in the notch. The makers state that the spring will roll the disc forward, until it touches the pipe. Pressing downwards on the handle together with a slight pull, will enable the wrench to take hold. It is said that the harder the push, the tighter is the grip of the wrench. To remove, all that is required is to give an easy push forward. The special design of the Craft wrench, enables it to readily roll free. The manufacturers also point out that the three point contact, gives a torsional instead of a crushing grip, and prevents the wrench from spoiling the stock. It is made in six sizes, 6 inches to 24 inches. It is made from case-hardened pressed steel, while the disc is a heat-treated drop forging.

A VALVE for EVERY SERVICE

Get The Genuine JENKINS DISC

JENKINS BRASS GLOBE VALVE

There's a Jenkins Valve for every service

Imitations are never as good.

You can't take chances on the valve disc.

The Disc is the heart of the valve—the part that gets the wear—and it **must** be good or the valve can't function properly.

Jenkins Discs are made to serve—and they do. Made of rubber composition they are flexible enough to form a perfect contact with the seat. They give long and satisfactory service and can be renewed, when necessary, without removing valve from line.

Do not accept imitations. Look for the "Diamond" Mark on every valve disc you buy.

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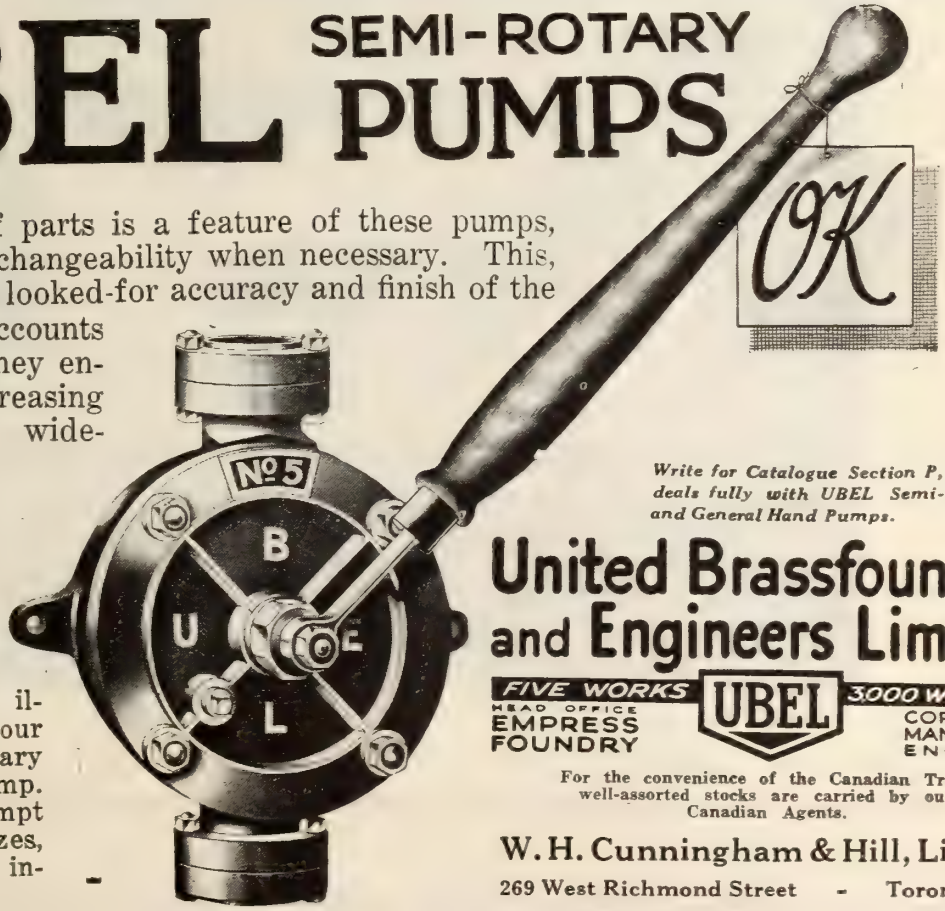
UBEL SEMI-ROTARY PUMPS

Standardization of parts is a feature of these pumps, guaranteeing interchangeability when necessary. This, combined with the looked-for accuracy and finish of the UBEL product, accounts for the fact that they enjoy an ever-increasing popularity and widespread demand.



The accompanying illustration shows our Fig. P 1 Semi-Rotary Double-Acting Pump. We can give prompt shipment of all sizes, from ½ in. to 3 in. inclusive.

Write for Catalogue Section P, which deals fully with UBEL Semi-Rotary and General Hand Pumps.

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WALTER HILL & SON
Standard
PLUMBING FIXTURES

This Display of a "Standard" Bathroom Brings Big Business

For the past two weeks, I have had a display of a standard 5 ft. Bathroom in my window and this has been the means of bringing me a great deal of new business.

So great has been the interest shown in this display that there have been as many as 20 people in front of my window at one time.

The actual business that has resulted from this display has been most gratifying in addition to the large number of prospects which I am following up.

Several people mentioned that they had seen your advertising in MacLean's Magazine and I feel confident that this has done much to create the very favorable interest that has been shown in this and other displays that I have given the Standard line.

This is what Walter Hill & Son, Sanitary Engineers, of Toronto, write us about their window display, (reproduced on opposite page) the available space for which was only 5 ft. square.

Let *your* show window space be your silent salesman.

Standard Sanitary Mfg. Co.
Limited

General Office and Factory:
Royce and Lansdowne Aves., Toronto, Ont.

Toronto Store:
55-59 Richmond Street East
Calgary:
325 Eighth Avenue West

Winnipeg Showrooms:
76 Lombard Street
Hamilton Store:
26-28 Jackson Street West

Montreal:
New Birks Bldg.
Vancouver:
860 Cambie Street

Classified Buyers Guide

AIR LINE SYSTEMS
C. A. Dunham Co., Ltd., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.

ALUMINUM CASTINGS
Fittings Limited, Oshawa.
Canada Metal Co., Ltd., Toronto.

AIR PRESSURE TANKS
The Canadian John Wood Mfg. Co., Toronto.

AIR VALVES
Beaton & Cadwell Mfg. Co., New Britain, Conn.
Beaton & Corbin Mfg. Co., Southington, Conn.
W. H. Cunningham & Hill, Ltd., Toronto.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
J. H. Williams Co., Brooklyn, New York.
Steel & Radiation, Ltd., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.

ASBESTOS GOODS
James Morrison Brass Mfg. Co., Toronto.

BATHROOM FITTINGS
Canada Metal Co., Ltd., Toronto.
Gendron Mfg. Co., Ltd., Toronto.

BENDING SPRINGS
W. H. Cunningham & Hill, Ltd., Toronto.

BOILERS, STEAM OR HOT WATER
The Canadian John Wood Mfg. Co., Toronto.
Gurney Foundry Co., Limited, Toronto.
Lord & Burnham Co., Ltd., Toronto.
Spencer Heater Co., Ltd., Toronto, Ont.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal.

BOILER FEED REGULATORS
Empire Mfg. Co., London and Toronto.
C. A. Dunham Co., Ltd., Toronto.
James Morrison Brass Mfg. Co., Toronto.

BOILER STANDS
Fittings Limited, Oshawa.

BOLTS, EYE
J. H. Williams & Co., Brooklyn, N.Y.

BOLTS AND NUTS
Fittings Limited, Oshawa.

BRASS GOODS, VALVES, ETC.
Canadian Brass Co., Ltd., Galt, Ont.
Canada Metal Co., Ltd., Toronto.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings Limited, Oshawa.
Galt Brass Co., Limited, Galt.
Kerr Engine Co., Ltd., Walkerville.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Trimont Mfg. Co., Roxbury, Mass.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.
W. H. Cunningham & Hill, Ltd., Toronto.

BRASS PIPE AND TUBE
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Wolverine Ltd., Toronto, Ont.

CASTINGS
Canada Metal Co., Ltd., Toronto.
Fittings Limited, Oshawa.

CELLAR DRAINERS
Galt Brass Co., Limited, Galt.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

CHAINS
Fittings Limited, Oshawa.

CIRCULATORS
Atlas Engineering & Machine Co., Ltd., Toronto
J. H. Williams & Co., Brooklyn, N.Y.

CLAMPS "U"

CLOSETS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

CONDENSATION UNITS
C. A. Dunham Co., Ltd., Toronto, Ont.
The Westco Pumps Limited, Toronto.

COUNTRY RESIDENCE EQUIPMENTS
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

COUPLINGS
Canada Metal Co., Ltd., Toronto.
Fittings Limited, Oshawa.

DAMPER REGULATORS
C. A. Dunham Co., Ltd., Toronto.

DEHUMIDIFYING APPARATUS
B. F. Sturtevant Co., Hyde Park, Boston, Mass.

DISCS
The Commercial India Rubber Manufacturing & Supply Co., Ltd., London, Eng.

DRAINAGE FITTINGS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings Limited, Oshawa.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Steel & Radiation, Ltd., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Warden King, Ltd., Montreal.

DRAIN PIPE, SOLVENT
W. H. Cunningham & Hill, Ltd., Toronto.

DRINKING FOUNTAINS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

DROP FORGINGS
J. H. Williams & Co., Brooklyn, N.Y.

EJECTORS, STEAM
Kerr Engine Co., Walkerville.
James Morrison Brass Mfg. Co., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.

ENAMELWARE
Amherst Foundry Co., Ltd., Amherst, N.S.
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Port Hope Sanitary Mfg. Co., Ltd., Port Hope.
Standard Sanitary Mfg. Co., Ltd., Toronto.

ELECTRIC PUMPING MACHINERY
Atlas Engineering Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

EXPANSION TANKS
Toronto Hardware Mfg. Co., Ltd., Toronto.

FITTINGS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings Limited, Oshawa.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Steel & Radiation, Ltd., Toronto.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Warden King, Ltd., Montreal.

FLUSHOMETERS
Beaton & Corbin Mfg. Co., Southington, Conn.
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Ltd., Galt.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Wolverine Ltd., Toronto, Ont.

FLOOR AND CEILING PLATES
Beaton & Cadwell Mfg. Co., New Britain, Conn.
W. H. Cunningham & Hill, Ltd., Toronto.
Fittings Limited, Oshawa.
Wolverine Ltd., Toronto, Ont.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
James Morrison Brass Mfg. Co., Toronto.

FURNACES
Gurney Foundry Co., Limited, Toronto.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal.
Spencer Heater Co., Ltd., Toronto.
Peace Furnace Co., Toronto.
Hamilton Stove & Heater Co., Hamilton.
Burrow, Stewart & Milne, Hamilton.
Hall-Zyrd, Hespeler, Ont.
Vulcan Co., London, Ont.

GASOLINE ENGINES
Empire Mfg. Co., Ltd., London and Toronto

GAS WATER HEATERS
Bastian-Morley Limited, Toronto.
Empire Mfg. Co., Ltd., London and Toronto
Hotstream Heater Co., Cleveland, Ohio.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
W. H. Cunningham & Hill, Ltd., Toronto.

GALVANIZING
Fittings Limited, Oshawa.

GRATES FOR RANGES, FURNACES AND BOILERS
McIntyre & Taylor, Toronto.

HEAT GENERATORS
Galt Brass Co., Galt, Ont.
James Morrison Brass Mfg. Co., Toronto.

HEATING APPARATUS
C. A. Dunham Co., Ltd., Toronto.

HEATERS
Canada Metal Co., Ltd., Toronto.
The Hotstream Heater Co., Cleveland, Ohio.
Lord & Burnham Co., Ltd., Toronto.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal and Toronto.
W. H. Cunningham & Hill, Ltd., Toronto.

HEATING SYSTEMS
C. A. Dunham Co., Ltd., Toronto

HUMIDIFYING APPARATUS
B. F. Sturtevant Co., Hyde Park, Boston, Mass.

HOIST HOOKS
J. H. Williams & Co., Brooklyn, N.Y.

HOT WATER COILS, DOMESTIC
McIntyre & Taylor, Toronto.

JAPANNING
Fittings Limited, Oshawa.

KEROSENE WATER HEATERS
Hotstream Heater Co., Cleveland, Ohio.
W. H. Cunningham & Hill, Ltd., Toronto.

LAUNDRY TUBS
The Canada Metal Co., Ltd., Toronto.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

LEAD
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Hoyt Metal Co., Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

MACHINISTS' TOOLS
J. H. Williams & Co., Brooklyn, N.Y.

MALLEABLE IRON CASTINGS
Gurney Foundry Co., Limited, Toronto.
Fittings Limited, Oshawa.

MACHINE BOLTS AND NUTS
Fittings Limited, Oshawa.

MIXING VALVES
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co. Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Port Hope Sanitary Mfg. Co., Ltd., Port Hope.

PACKING

RADIATOR FOOT RESTS
Empire Mfg. Co., Ltd., London and Toronto
Wolverine Ltd., Toronto, Ont.
W. H. Cunningham & Hill, Ltd., Toronto.

PACKLESS RADIATOR VALVES
Kerr Engine Co., Walkerville.
C. A. Dunham Co., Ltd., Toronto, Ont.

PIPE AND RADIATOR HANGERS
Beaton & Cadwell Mfg. Co., New Britain, Conn
Beaton & Corbin Mfg. Co., Southington, Conn
W. H. Cunningham & Hill, Ltd., Toronto.
Healy-Ruff Company, Minneapolis, Minn.

PIPE, BLACK AND GALVANIZED
Canada Metal Co., Ltd., Toronto.
Canadian Tube & Iron Co., Ltd., Montreal.
Empire Mfg. Co., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd. Sarnia, Ont.
Steel & Radiation, Ltd., Toronto.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

PIPE CLEANSER
Chamberlain Desolvo Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto
Wolverine Ltd., Toronto, Ont.
W. H. Cunningham & Hill, Ltd., Toronto.

PIPE JOINT COMPOUNDS
Wolverine Ltd., Toronto, Ont.
James Morrison Brass Mfg. Co., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
W. H. Cunningham & Hill, Ltd., Toronto.

PIPE, SOIL, AND FITTINGS
Anthes Foundry Co. Toronto and Winnipeg.
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings Limited, Oshawa.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd. Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Toronto Hardware Mfg. Co., Toronto.
Warden King, Ltd., Montreal

PIPE THREADING TOOLS AND MACHINERY
Borden Canadian Co., Toronto.
A. B. Jardine & Co., Hespeler.
W. H. Cunningham & Hill, Ltd., Toronto.

PIPE WRENCHES
J. H. Williams Co., Brooklyn, New York.
W. H. Cunningham & Hill, Ltd., Toronto.

PLUMBERS' TOOLS
J. H. Williams & Co., Montreal, Que.
W. H. Cunningham & Hill, Ltd., Toronto.

PNEUMATIC WATER SUPPLY TANKS
Empire Mfg. Co., London and Toronto.

PORCELAIN WARE
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Porcelain Products Ltd., Toronto.

PUMPS
Atlas Engineering Co., Ltd., Toronto.
W. H. Cunningham & Hill, Ltd., Toronto.
R. M. McDougall & Co., Ltd., Galt, Ont.
The Westco Pumps Limited, Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.

PUMPING SYSTEMS, AUTOMATIC
Canada Metal Co., Ltd., Toronto.
R. M. McDougall & Co., Ltd., Galt, Ont.
The Westco Pumps Limited, Toronto.
Beaton & Cadwell Mfg. Co., New Britain, Conn.

RADIATORS
Gurney Foundry Co., Limited, Toronto.
Lord & Burnham Co., Ltd., Toronto.
Steel & Radiation Ltd., Toronto.
Warden King Ltd., Montreal.

RADIATOR HANGERS
Healy Ruff Company.

RADIATOR NIPPLES
Fittings Limited, Oshawa.

RADIATOR TRAPS (STEAM)
C. A. Dunham Co., Ltd., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.

RIVETS
Fittings Limited, Oshawa.

RANGE BOILERS
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
The Canadian John Wood Mfg. Co., Toronto.
Toronto Hardware Mfg. Co., Toronto.

REDUCING PRESSURE VALVES
C. A. Dunham Co., Ltd., Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.

ROOF FLANGES AND FLASHINGS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
The Simplex Mfg. Co., Chicago, Ill.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

SEPTIC TANK VALVES AND SYPHONS
Anthes Foundry Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

SINK BRACKETS
Fittings Limited, Oshawa.

SOCKETS, WIRE ROPE
J. H. Williams & Co., Montreal, Que.

SOLDER
Canada Metal Co., Ltd., Toronto.
Hoyt Metal Co., Toronto.

STEAM SPECIALTIES
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
Kerr Engine Co., Walkerville, Ont.
James Morrison Brass Mfg. Co., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.

STEAM TRAPS
Atlas Engineering Co., Ltd., Toronto.
C. A. Dunham Co., Ltd., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.

STOVES
Gurney Foundry Co., Limited, Toronto.

STOVES, GAS AND COAL
Gurney Foundry Co., Ltd., Toronto.

SMOKE TEST MACHINES
James Morrison Brass Mfg. Co., Toronto.

SWIVELS, HOOK
J. H. Williams & Co., Brooklyn, N.Y.

TANKS, STEEL
Atlas Tank Works, Toronto.
The Canadian John Wood Mfg. Co., Toronto

TANK BULBS (RUBBER)
Canada Metal Co., Ltd., Toronto.
W. H. Cunningham & Hill, Ltd., Toronto.

TESTING PLUGS
James Morrison Brass Mfg. Co., Toronto.

THUMB SCREWS AND NUTS
J. H. Williams & Co., Brooklyn, N.Y.

TOOLS
Wolverine Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont
Standard Sanitary Mfg. Co., Ltd., Toronto Hamilton.
Trimont Mfg Co., Roxbury, Mass.
J. H. Williams & Co., Brooklyn, N.Y.
W. H. Cunningham & Hill, Ltd., Toronto.

TORCHES
W. H. Cunningham & Hill, Ltd., Toronto

UNIONS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.

VAPOR HEATING SYSTEMS
C. A. Dunham Co., Ltd., Toronto.

VISES, CHAIN, CLAMP, MOUNT
J. H. Williams & Co., Brookly, N.Y.

VITRO TANKS
Galt Brass Co., Ltd., Galt.

VACUUM SYSTEMS OF HEATING
C. A. Dunham Co., Ltd., Toronto.

VALVES
Empire Mfg. Co., London and Toronto.
R. MacDougall & Co., Ltd., Galt.
James Morrison Brass Mg. Co., Ltd., Toronto
Jenkins Bros., Ltd., Montreal, Que.
The Kerr Engine Co., Ltd., Walkerville, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.

WATER SUPPLY SYSTEMS
The Burnett-Larsh Mfg. Co., Dayton, Ohio.
Empire Mfg. Co., London and Toronto.
Standard Sanitary Mfg. Co., Ltd., Toronto Hamilton.
The Westco Pumps Limited, Toronto.

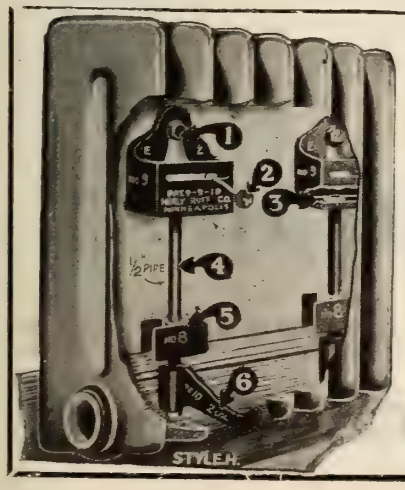
WASHERS.
Canada Metal Co., Ltd., Toronto.
W. H. Cunningham & Hill, Ltd., Toronto.

WASHING MACHINES
Gurney Foundry Co., Ltd., Toronto.

WRENCHES, SET, DROP FORGED, ENGINEERS

SOCKET AND CHAIN PIPE
J. H. Williams & Co., Brooklyn, N.Y.

WROUGHT COUPLINGS AND NIPPLES
Canada Metal Co., Ltd., Toronto.
Fittings Ltd., Oshawa.



E-Z Radiator Hanger

Manufactured in Canada **Reasonable in Price**

(1) One Bolt.
(2) Invisible Washer.
(3) Horizontal Adjustment.
(4) Vertical Adjustment.
(5) Baseboard Adjustment.
(6) Made for Wall and Column Radiation.

HEALY-RUFF CO. **Minneapolis, Minn.**

Vancouver.
J. H. Leonard, Tribune Bldg., Winnipeg.
D. G. Brison, Standard Bank Building,
A. Walker, 514 McLean Bldg., Calgary.
E. T. Flanigan, 229 College St., Toronto.
Eager Coombs & Co., Ltd., Halifax, Can.
Shaver Bros., Booth Bldg., Ottawa.
S. T. Hadley, 304 University Street, Montreal.

Style "R"

BANNER STOVES AND FURNACES

The Two

recognition

The Banner Pipe Furnace

Is a thoroughly satisfactory high grade warm air furnace.

The rated capacity is not exaggerated.

Cast iron is the only metal that comes in direct contact with the fire.

Heavy cast iron combustion chamber, heavily ribbed fire pots and large roomy ash pit.

Heavy, individual shaker grate bars.

Large radiator with free air passage.

Send for our illustrated catalogue and agency proposition if we are not represented in your town.

MORE HEAT

The Galt Stove &

GALT

that have Won

for Leadership

The Banner Pipeless Furnace

The Banner Pipeless Furnace is a proven success in its field.

Hundreds of Canadian homes are now heated with the Banner Pipeless with complete satisfaction.

The Furnace itself is the same in construction as its famous brother, the Banner Pipe Furnace.

A new profitable field is open to the wide-awake dealer in the Banner Pipeless.

Our unconditional guarantee is behind every furnace.

Complete directions for installing with each furnace.

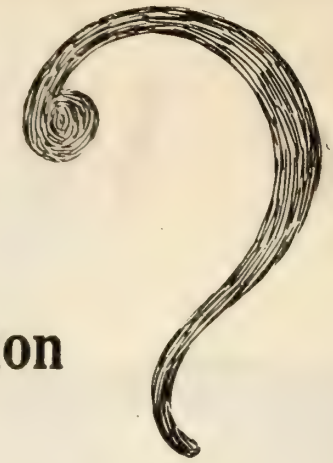
Send for our agency proposition for your town.

LESS FUEL

Furnace Co., Limited

ONTARIO

Handling Steam Condensation



When you find a gravity return heating system—with one section sluggish in action and no circulation, what do you do to correct it?

How do you balance up unequal return pressures?

If you have to drain a heating section which is below the boiler, how do you do it?

If your lines are "air-bound" how do you relieve them?

If you find the heating returns running to waste—does it pay to catch them and return them to the boiler?

Have you ever removed "dumping" traps because they wouldn't dump?

Have you ever seen a "return trap" which would not return?

Have you ever got into trouble through installing a troublesome return trap?

We have eliminated the "dumping return trap" with its failures and troubles.

We show you how to avoid trouble when you want to put in a direct return system.

You get all the advantages of a direct return system without a possibility of failure or a chance of trouble when you use our condensation appliances.

Ask us for particulars. Condensation is our strong point.

Canadian Combustion Company
Limited

Engineers and Manufacturers

43 Victoria St. Toronto

A Word About Cleanout Doors

You and I know that clean flues mean coal saving, and the easier cleaned, the oftener cleaned. That's why each Burnham Boiler flue has its own separate cleanout door. Any flue can be cleaned at any time, regardless of how big or little the fire is.

Write us for complete information.

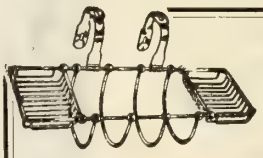
Lord & Burnham Co. Limited of Canada

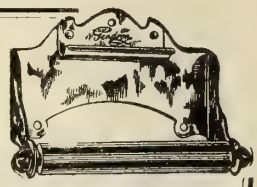
(Boiler Department)

Harbor Commission Bldg., Toronto

Burnham Cosy Comfort Heat BB

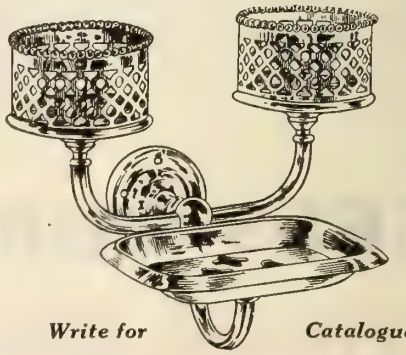
Factory: St. Catharines Ontario





Bathroom Fittings and Hardware Specialties

Toronto Gendron Canada



Write for Catalogue

MADE ONLY BY

The Gendron Mfg. Co., Limited

Duchess Street - Toronto

1, 5, 10, 20, and 50-lb. pails

WOLVERINE PIPE JOINT CEMENT

-will make perfect non-leaking joints

Protect your profits and reputation by using a pipe joint cement that will positively make perfect non-leaking joints.

Write today for 1lb. sample tin.

Wolverine Quality Specialities and Rubber Goods are Better.

WOLVERINE LIMITED

76 Nelson St., Toronto-

THE TRADE

Is Respectfully Cautioned

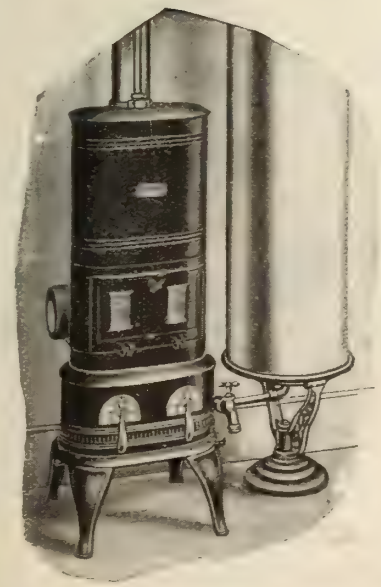
to specify

RIVETED RANGE BOILERS

Made by the old reliable

TORONTO HARDWARE MFG. CO., LIMITED

McClary's Water Heaters



McClary's

FLORENCE OIL WATER HEATER
Illustrated at the left.

An independent unit—can be installed anywhere. Simple operation. Washing water 10 minutes. Bath water 40 minutes.

McClary's

NO. 60 GAS WATER HEATER.
Shown on the right.

Double Coil of pure copper. Results guaranteed.

Don't forget to ask us about our **Electric Water Heater** with three-heat switch—for connection with storage boiler.

Our nearest Warehouse can supply you

McClary's

London Toronto Montreal Winnipeg
Vancouver St. John, N.B. Hamilton
Calgary Saskatoon Edmonton

USE

TESTED Soil Pipe

IT COSTS NO MORE AND YOU KNOW THE JOB IS RIGHT

Manufactured by

FORWELL FOUNDRY, LTD.

KITCHENER, ONT.

ATTENTION! Contract Shops, Stores, Employers, Clerks, Mechanics, etc.

Our new HOME STUDY course in BUSINESS ADMINISTRATION is now ready for the trade. It teaches you the most modern methods of Business.
Learn to extend your Markets; enlarge your Business; Learn to adjust all the business combinations to the limit. We build on top of your present Ability and give you a business training equal to the best.
We teach you in your own home or office, Clear, Personal, Direct. An Hour a Day will prepare you into a highly specialized Executive. Make ready for the next great prosperous Building wave.

Full information free.

COURSES IN MODERN BUSINESS ADMINISTRATION
COURSES IN SHEET METAL DESIGN AND PATTERN DRAFTING
COURSES IN HEATING AND VENTILATING ENGINEERING

ST. LOUIS TECHNICAL INSTITUTE

4543 Clayton Ave. O. W. Kothe, Prin. St. Louis, Mo.

Made in W *Canada*

Better Tools make Better Workmen—

And there are no better tools than WILLIAMS' Hammers. All kinds; all sizes. Catalog on request.

J. H. WILLIAMS & CO. Limited

"The Drop-Forging People."

77 Thorold Road St. Catharines, Ontario

The Everlasting Veneer Toilet Seat

Strong, Clean Hygienic

This reliable, dependable toilet seat is made of 7 and 9-ply, air-seasoned wood veneer, held together by our special wood cement. This cement is proof against heat, cold or dampness. The veneering is distributed according to the strain and wear required of the different parts. The Everlasting Seat will never crack, warp or split.

It is a splendid seat for use in cold, damp basements where closets must be installed. The Everlasting Toilet Seat will meet, and successfully resist these severe conditions of moisture, changing temperature, etc.

Canadian Veneering Company, Incorporated

Action Vale Quebec

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WANTED

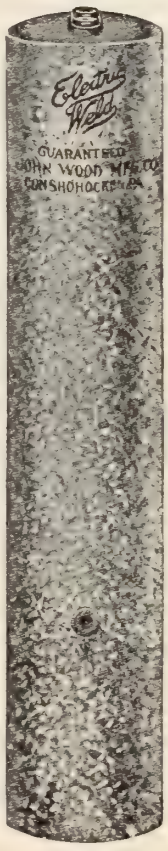
Capable heating Engineer in each Province to sell Heating and steam plant specialty line. Apply Box 18. Sanitary Enginer. 25.

Let these Ten Reasons be stepping-stones to a profitable turnover

Electric Weld

Range Boilers

1. NO RIVETS—NO LEAKS. This principle in Electric Weld boilers explains the dominating position held by them throughout the world. For this same reason you will find Electric Weld construction in High pressure air tanks, Oxygen tanks and wherever freedom from leaks is the paramount need.



2. The "Electric Weld" seam is a metal to metal joint like a blacksmith's forging.

3. The head and bottom of Electric Weld boilers are made secure by hot brazing, giving a perfect amalgamation. Any mechanic will appreciate that brass and steel under heat form a strong joint, infinitely superior to rivets.

4. A service record of twenty years shows that Electric Weld has never been equalled by any other boiler of any construction.

5. "Electric Weld" boilers are tested black, before galvanizing and do not depend on the galvanizing metal or any other outside agency to make them tight.

6. Electric Weld range boilers are galvanized thoroughly inside and outside and only the highest grade virgin spelter used.

7. Electric Weld range boilers, unlike pig lead, are not bought by bulk weight. If weight is taken up by rivets, laps, solder, etc., nothing is added to durability of boiler.

8. "Electric Weld" boilers are not affected by jolts or jars. They withstand transportation conditions without damage.

9. The "Electric Weld" joint is approved by the Boiler Inspector of Ontario for use on air tanks and receivers for high pressures.

10. The boiler is backed by a cash guarantee of $2.00 refund and a new boiler for any one that proves defective on installation.

Don't let this opportunity slip by for installing a reliable range boiler that will not only give you real prestige but pay a marginal profit.

Canadian John Wood Mfg. Co.

LIMITED

Toronto - Ontario

Mr. Sanitary Engineer

Ask your jobber for No. 4 Somerville Combination Self Venting Fitting. Canadian rights fully covered.

Somerville Iron Works

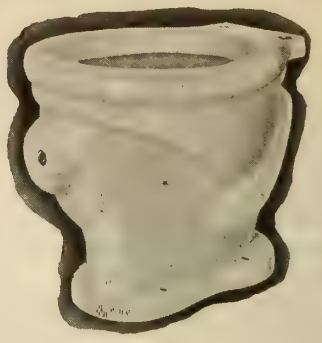
Somerville, N. J.

Easily Cleaned

The APEX Closet Bowl has special features that place it in a class by itself.

Clean-out device located at head of trap. Any obstruction can be located and removed in five minutes without disconnecting from floor or water. **Cannot overflow.** Silent in operation.

Find out all about the APEX before installing another closet bowl. Canada Patents for sale.



THE APEX SUPPLY CO.

203 E. STATE ST. TRENTON N.J.

Tapped Closet Bend

Easier to attach

More permanent

Cost less

FOUNDRY

GALT K-T ONT

WROUGHT PIPE

Suitable for the approaching period of building activity, road construction, etc. This is a line of great importance in making successful, profitable contracts. Our C. T. Brand of Wrought Pipe has been

THOROUGHLY INSPECTED

by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trademark. We carry this line of reliable pipe in sizes ⅛-in. to 4-in. Black or Galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your Jobber for C. T. Brand Wrought Pipe

Canadian Tube and Steel Products Co., Ltd.

Operating Canadian Tube and Iron Co., Limited Works at Lachine Canal, Montreal

PATENTED IN CANADA

Better Selling Value Than Ever

We have equipped our Steel Baths with **Pressed Steel Removable Legs** and 3 inch **Roll Rim** around the top, for which we have secured a Canadian Patent. This **Roll Rim** adds greatly to the selling value of

TWEED ENAMELLED STEEL **BATHS**

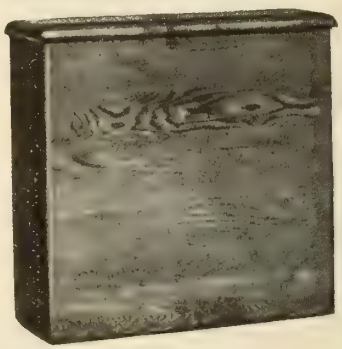
They now look like the expensive cast enamel baths but are the **same price** as before.

Our new patent Roll Rim Enamelled Steel Baths are now ready for shipment.—Order samples.

The Steel Trough & Machine Co. Ltd.

Tweed—Ontario—Canada.

Toronto Office: 220 King St. West - Montreal Office: St. Nicholas Bldg.



Bull Dog

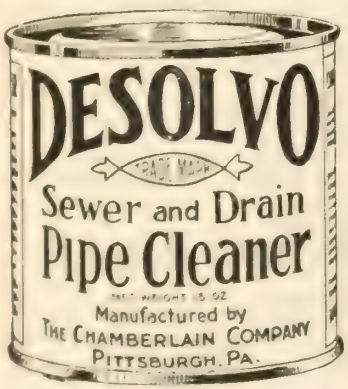
Brand

Seats & Tanks

Strongly made of superior materials, and thoroughly proof against warping, opening, etc. Investigate the Bull Dog line of products.

HOURD & CO., LIMITED

London, Canada.



Clears Clogged and Frozen Pipe

No Need to Tear up Floors or Lawns

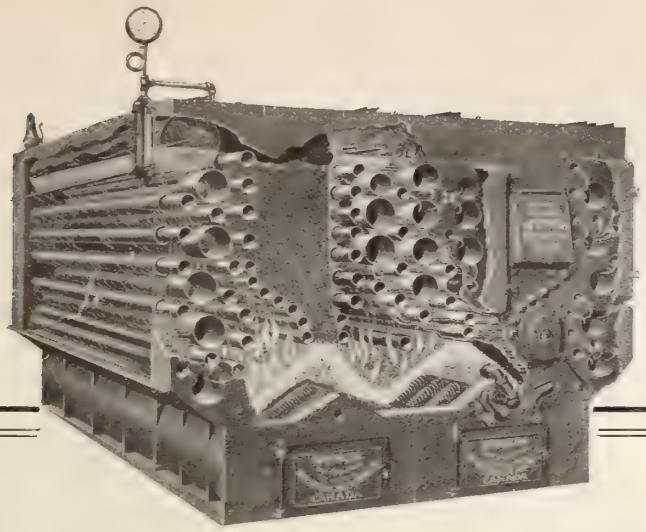
Display Desolvo conspicuously in your windows. A brief, clear show-card will explain its usefulness to the user. Better yet put it in your local advertisements.

You will find a gratifying volume of sales as soon as you show users what Desolvo does for them, and let them know you sell it.

The Chamberlain Desolvo Co., Limited

109 Church Street - TORONTO

Western Canada Representative: N. D. McPhail and Company, Standard Bank Bldg., Vancouver, B.C. **Eastern Canada Representatives:** Richardson and Bureau, 55 St. Francis Xavier St., Montreal. **Ontario Representative:** L. F. Mayne, 875 Trafalgar St., London, Ont.



See that the School in Your District has a Spencer Heater

During the school holidays is the period of renovating and making preparations for the winter months.

Every plumber should be on the alert and get the contract for installing the heaters for the school in their territory.

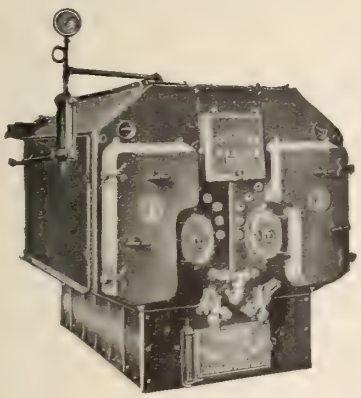
However, be sure it is a "Spencer" you install.

They are easy to run and require little attention. Burn various kinds of coal (hard or soft), coke, fuel oil or gas in a smokeless manner, and with a constant service.

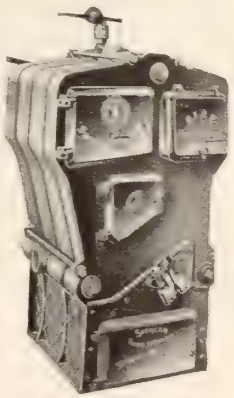
The magazine holds a 24-hour supply, feeds uniformly only as fast as coal is consumed, giving exact control. They have maintained temperatures 48 hours in the coldest weather without attention.

We offer many sizes and a wide variety. Send us your name and address and we will furnish further particulars.

If you don't know the facts concerning the Spencer, "It's time you did."



Steam
27 sizes, 375 to 10,000 sq. ft.



Hot Water—10 sizes,
600 to 3,600 sq. ft.

Spencer Heater Company of Canada, Limited

68 Adelaide Street East - Toronto, Ontario

Winnipeg, Man.
185 Portage Ave., E.

Plant
Penetang, Ont.

Montreal, Que.
71 St. James Street

It's a Beauty—

You have only to look once at the beautiful lines and brilliant white surface of The New Design—No Trouble—VitrO Tank to know that here is something that carries an instant appeal to discriminating buyers.

All the features of previous VitrO's—PLUS—a new and beautiful design.

Ask your jobber to show you one—you'll like it.

Galt Brass Company, Limited

GALT - CANADA

Every Tank Tested

VITRO NO TROUBLE TANK

Every Part Perfect

Sanitary Engineer
Plumber and Steamfitter of Canada
Vol. XVI. PUBLICATION OFFICE, TORONTO, JUNE 15, 1922 No. 12

The "Emco"
Adjustable Box Flange Bibb

This is a handy and extremely valuable bibb that adapts itself to the varying spaces between the sink and the connection. The long shank of the box flange forms a complete covering on the bibb shank and prevents the unsightly threads showing.

The highest quality metals are used in the manufacture of "Emco" products. They are subjected to severe tests before being passed for shipment from our factory. When buying specify our lines. All progressive jobbers carry "Emco" sanitary fixtures and plumbing supplies.

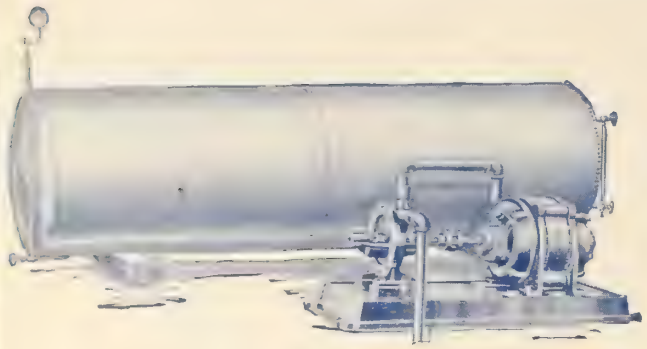
"We cover all the 'Emco' Line—with a Finish that is Fine."

Empire Brass Manufacturing Co.
Limited

London and Toronto, Canada

Westco TANK Systems

"Made Good to Make Good"



BECAUSE we have been consistently advertising TANKLESS Systems for years, many members of the trade are under the impression that we do not make TANK Systems.

ALL of the original WESTCO Systems were TANK Systems.

We have ALWAYS specified TANKS for use with large automatically controlled installations, as in Rural Schools, Public Institutions and on Golf Courses or large estates, or where a considerable group of houses are to be supplied from one pump.

The WESTCO TANKLESS Systems were developed to meet the demand on small installations for WATER PUMPED DIRECT and FRESH from the WELL to the TAPS.

The WESTCO PUMP, because of its simplicity, and very low starting resistance, has proved to be the ONLY Pump which would operate successfully on a TANKLESS AUTOMATIC System. It is because of this that we have featured it in our advertising.

WESTCO TANKLESS Systems are made in capacities from 200 to 1,000 gallons per hour.

WESTCO TANK Systems range from 200 to 10,000 gallons per hour.

There is a WESTCO SYSTEM to fit every job.

WESTCO DEMONSTRATORS land contracts for PLUMBING INSTALLATIONS.

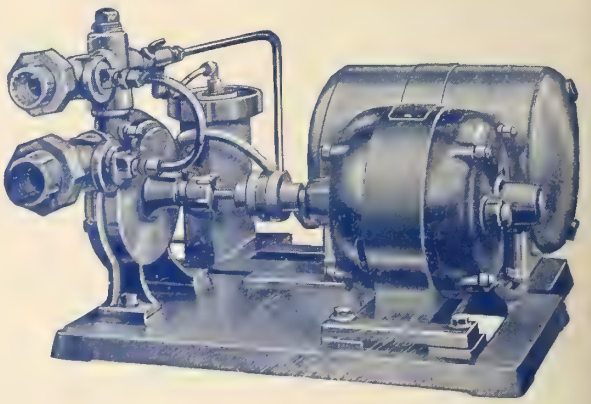
Have You Ordered Yours?

WESTCO PUMPS

LIMITED

QUEEN AND ABELL STREETS

TORONTO - ONTARIO



Drinking Fountains

White, Clean, Vitreous, Sanitary

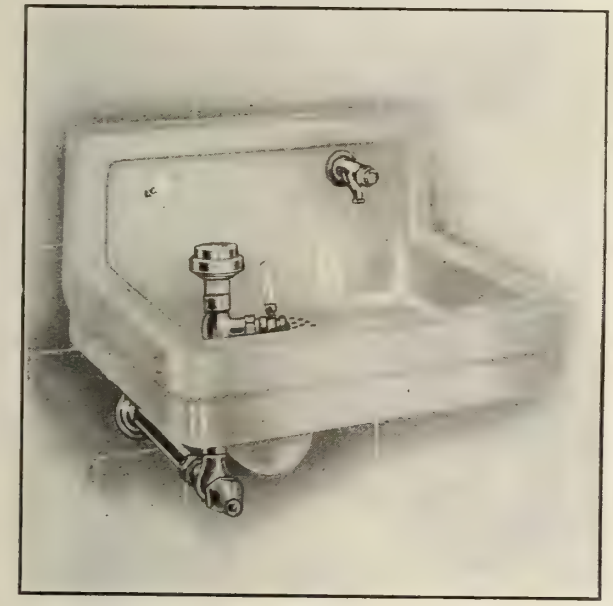


Plate 901

The lustrous white clean surface of a Canadian Vitreous Drinking Fountain suggests the cool refreshing draught which can with safety be taken therefrom.

Canadian Vitreous China is the most thoroughly sanitary material of which a Drinking Fountain can be made. It is all clay, the same white, dense, substantial, strong, vitreous body through and through, with a beautiful hard, lustrous, live-white glaze surface, which cannot chip, crack, rust, discolor or deteriorate.

Dirt and germs will not readily cling to its smooth hard surface so that with a minimum of effort its original glistening whiteness will be retained after years of use.

The fittings illustrated are only suggestive. A variety of good sanitary bubblers are obtainable which will readily fit either of the patterns shown.

The moderate price at which these very desirable fixtures are furnished by us should ensure their installation in every public building.

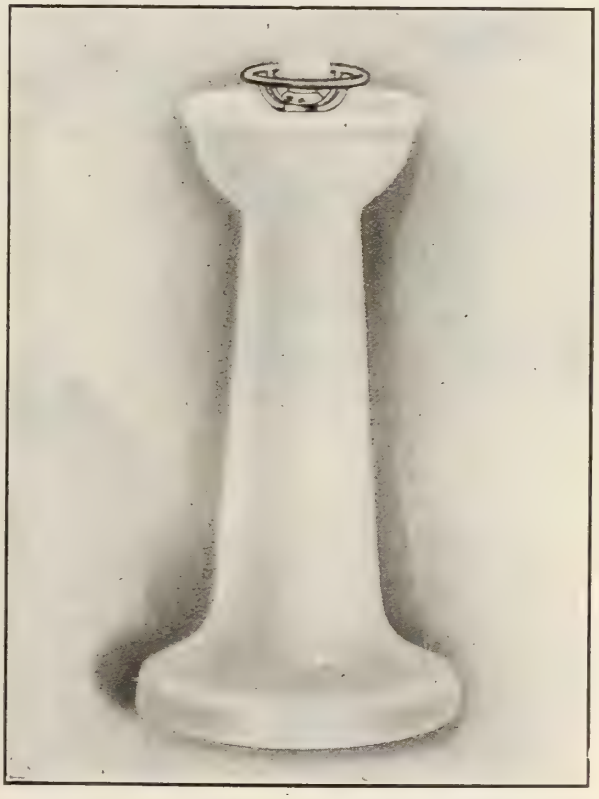


Plate 909

CANADIAN POTTERIES
LIMITED

SAINT JOHNS
QUEBEC

Sales handled exclusively through recognized jobbing houses

TRADE B.O.T. MARK

Syphon Closets

CANADIAN BRASS CO. LIMITED QUALITY SERVICE

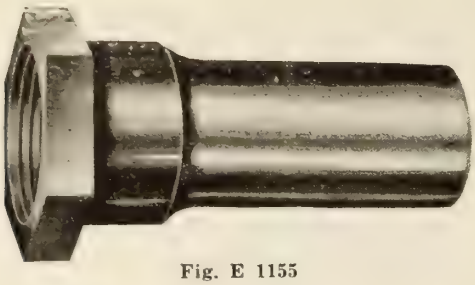


Fig. E 1155

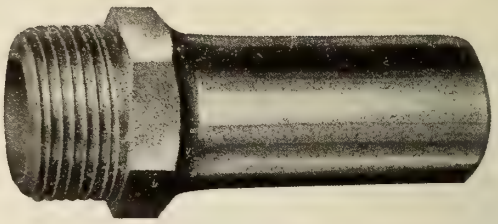


Fig. E 1154

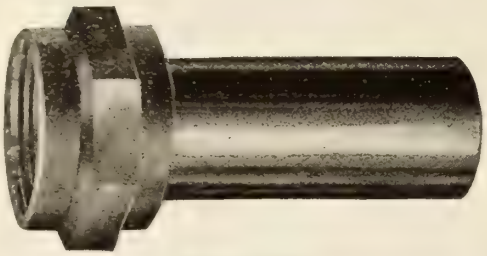


Fig. E 1156

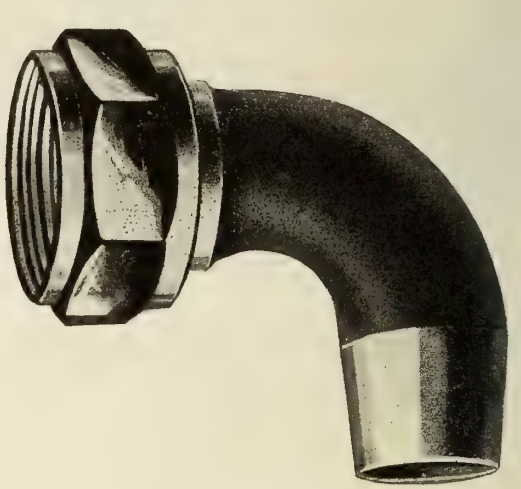


Fig. E 1157

CANADIAN BRASS CO. LIMITED QUALITY SERVICE

Fig. E 1161

BUILT for SERVICE

Fig. E 1160

Fig. E 1158

Fig. E 1159

LIKE STERLING

CANADIAN BRASS GALT ONT

ON SILVER

BRASS GOODS

HALL MARKS

TRADE B.O.T. MARK

OF QUALITY

No. 7

CRANE

RENEWABLE DISC GLOBE & ANGLE VALVES

UNION BONNET

For use in Plants where continuous service is required and where discs must be changed quickly without injury to the valve.

Made in Sizes $\frac{1}{4}$ to 3 inch.

FOR STEAM WORKING PRESSURE UP TO 150 LBS.

Steam Working Pressure Cast on Valve. Body, Bonnet, Stem, Disc Holder and Gland made of Brass. Wheel, Stuffing Box Nut and Union Bonnet Ring, made of Malleable Iron, which is Stronger, Stiffer and Tougher than any Brass, an essential Feature when considering the rough treatment these parts receive.

Manufacturers of Valves, Fittings and Piping Equipment for all Pressures and Purposes Distributors of Heating and Plumbing Supplies.

No. 7

CRANE
LIMITED
HEAD OFFICE & WORKS
1280 ST. PATRICK STREET
MONTREAL

Branches and Warehouses:
HALIFAX, OTTAWA, TORONTO, HAMILTON, LONDON, WINNIPEG, REGINA, CALGARY, VANCOUVER.

Sales Offices:
ST. JOHN, QUEBEC, SHERBROOKE, EDMONTON, VICTORIA, SYDNEY, AUSTRALIA.

CRANE-BENNETT
LIMITED
Head Office and Warehouse:
LONDON, ENGLAND.

Sales Offices:
BIRMINGHAM, CARDIFF, GLASGOW, LEEDS, MANCHESTER.

2

A Common Scene

YOU can find the original of the above picture in hundreds of thousands of Canadian rural homes. The outside toilet, the back yard used as a dumping ground for dish water and other refuse that not only provides a breeding place for flies and becomes a menace to health, but is unsightly and inconvenient to say the least.

There's Profit in Selling Sewage Disposal Systems

The minute a man realizes the comforts a sewage disposal system will bring him and his family—the minute he realizes that not having one of these systems may mean the destruction of health by the breeding of disease—the minute he realizes that a sewage disposal system can be installed without the necessity of taking out a mortgage on his house—the minute he realizes all this, he is going to want a sewage disposal system and want it bad.

But—he's got to be told just why he should buy—he's got to be shown all these little points—he's got to be made to see that he just simply can't afford to get along without this all-important improvement.

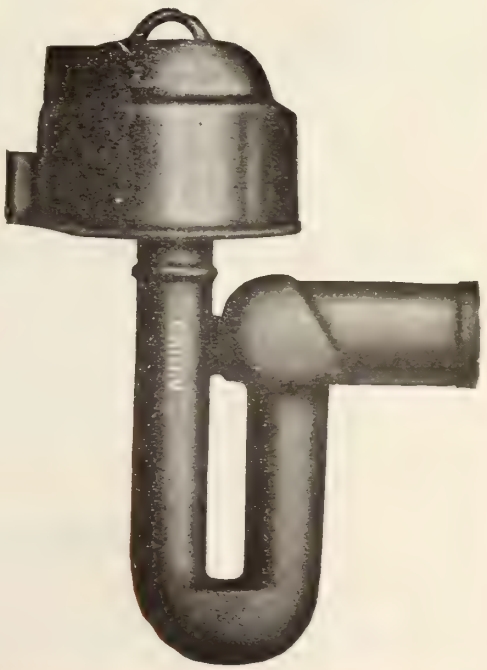
Mr. Sanitary Engineer—It's up to you. As a sanitary engineer it's your duty to point this out. And don't forget that it's a profitable duty. When you sell a man a sewage disposal and water system, you also open up a vast field for other plumbing and heating equipment.

Write to-day for illustrated circulars and booklets giving full information on how to install these systems.

Send these around to the people in your district who have not yet been sold a sewage disposal system and embark to-day on the good ship SEWAGE DISPOSAL for the port of BIGGER BUSINESS.

The ANTHES Syphon

The very heart of the system is the ANTHES syphon. Made of the best material, simple in construction, and built on natural principles, it operates as safely and surely as Nature's laws.



Anthes Foundry

Limited

Toronto and Winnipeg

Manufacturers of

Cast Iron Soil Pipe and Fittings

"Standard" PLUMBING FIXTURES

YOU CAN SELL BATHROOMS LIKE THIS.

This is one of the illustrations selected from our National advertising this month.

"Standard" advertising is read each month in thousands of Canadian homes. This creates a desire for something better.

Do not fail to show your prospective customer such fixtures illustrated above.

It will surprise you how often "better bathrooms" can be sold.

Standard Sanitary Mfg. Co.
Limited

General Office and Factory: Royce and Lansdowne Aves.,
Toronto, Ontario.

SANITARY ENGINEER
PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907 PUBLISHED TWICE MONTHLY

Vol. XVI. PUBLICATION OFFICE: TORONTO, JUNE 15, 1922 No. 12

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The MacLean Publishing Company, Ltd.

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H. V. TYRRELL, *General Manager.*

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UNITED STATES—New York, L. H. Meyer, 1606 St. James Bldg., 1133 Broadway, Telephone Watkins 5869: Boston, C. L. Morton, Room 734, Old South Buildings, Telephone Main 1024; Chicago, 405-6 Transportation Bldg., 608 So. Dearborn St., Wabash 9430.

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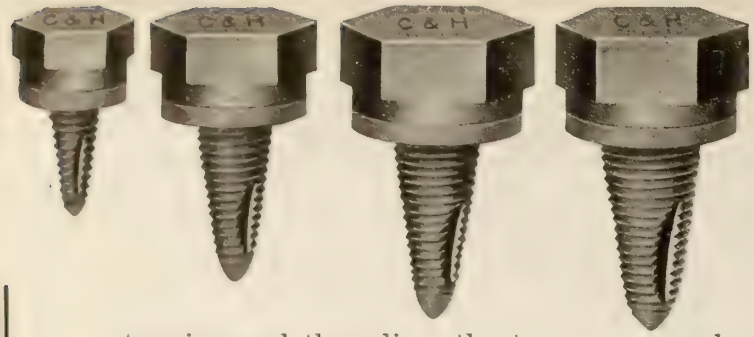


The Best
TAP PLUG

"C & H" Tap Plugs are best for several reasons—they are made from highest grade steel perfectly tempered, each plug has three cutting slots which insures perfect tapping and threading, the taper on our plug is also an important feature as well as the substantial head. Every plug perfect and guaranteed.

We also have a splendid Toggle Boiler Repair.

The C & H specialty line includes all the small items that you need—if one of our salesmen does not call on you, drop us a line, and we will be glad to have a representative call.

We are Canadian distributors for "B & C" Floor and Ceiling Plates, "Hercules" Drain Pipe Solvent, "Porcela" Enamel Cleaner, "Ubel" Semi-Rotary Pumps, "Hotstream" Gas and Kerosene Water Heaters, etc.

W. H. Cunningham & Hill, Limited

269 West Richmond Street, Toronto

We have a Complete Stock of Plumbing and Heating Specialties

BEAVER BRAND
Porcelain Enamel Ware

—*Your Guarantee of Quality*—

Beaver Brand Enamelware, by its ability to meet the highest demands for service under all conditions, has established itself in the confidence of the public to such an extent that each month witnesses an ever-increasing demand for products of Beaver manufacture.

Amherst Foundry Co., Limited

General Offices and Factory : Amherst, N.S.

Agents :

Ontario :

Monarch Brass Mfg. Co.
71 Brown St., Toronto

Manitoba and Northwest :

E. B. Plewes
197 Princess St., Winnipeg

Established 1907

Circulates Throughout Canada

Sanitary Engineer
Plumber and Steamfitter of Canada

Published First and Fifteenth of Month

Vol. XVI. TORONTO, JUNE 15, 1922 No. 12

Plumber Now Passes on the Sales Tax

Disposition to Absorb the Former Small Sales Tax Has Now Changed Due to Big Increase—Wholesalers Complain That Necessary Accounting Costs Them 25% of Tax Revenue Raised—Tariff Change May Increase Imports of Sanitary Enameled Ware

EDITOR'S NOTE:—In the last issue of Sanitary Engineer, a summary was given of the changes in taxation and tariffs outlined in the budget which has been receiving much consideration in Parliament. Now that there has been time to look into the matter, some interesting opinions are expressed herewith as to the effect of the changes upon the plumbing and heating industry. The effect of the tariff change on wrought iron tubing, enamelled ware, etc., and the effect of the increase in Sales Tax are outlined. The Sales Tax increase is of interest because of the fact that in the past it has to some extent been absorbed by supply firms who now are passing it on to the distributors.

THE TARIFF and taxation changes announced in the budget have been thoroughly discussed by manufacturers, wholesalers and operators, and to the plumbing industry with a few exceptions the revisions are received quite favorably having in mind the necessity of increased revenue. It is a foregone conclusion that new taxes will arouse protest, and no matter what provisions were contained in the budget, criticism may be expected. However, from opinions expressed throughout the trade, it is generally recognized that the plumbing field is quite fortunate in the 1922 tax and tariff proposals.

Increased Sales Tax

The increase of 50 per cent. in the sales tax is now a matter of fact. Preparations are being made by the wholesalers to "get under cover," and the same might be said of the distributors.

While in some instances the plumber has not yet decided on what procedure will be taken it is plainly seen that absorbing the higher amount is almost impossible. Formerly the practice of not including the tax in costs, not passing it on to the consumer, was undoubtedly too common, and with a little more thought and time, the plumber will not now be obliged to bear the burden that he was carrying previous to the budget.

The Stamp Tax

From its present reading, the Stamp Tax is under much criticism by some, while others seem willing to allow this item to pass with little concern. This extra tax naturally affects the larger business houses more than the smaller establishments, or the retailer. Manufacturers and many jobbers join in the protest to the government and are anxiously awaiting the outcome of recent deputations. That the Finance Minister will make drastic change in this direction is hardly expected, but some modifications, such as a flat rate, is thought probable. One wholesaler suggested that a tax of 3 cents on cheques up to $100, 5 cents from $100 to $1,000, with a further proportionate increase for higher amounts, would meet the requirements of needed revenue and would no doubt be more acceptable to all .

Increase Imports of Enamelled Ware

G. C. Crawford, vice-president Standard Sanitary Mfg. Co., Toronto, manufacturers of enamelled plumbing fixtures, etc., states:

"In regard to the reduction in preferential tariff on Canadian ware, while this tends to increase to some extent the importation of goods from abroad, still it is only a slight change in the low preferential tariff that has previously existed and it is not likely to cause any ill effect in so far as the distribution of our product is concerned."

No Change Yet on Pipe

Concerning the change in tariff on wrought pipe, A. H. Hough, vice-president, Canadian Tube & Steel Products, Ltd., Montreal, states:

"While the tariff has been reduced from 35 per cent. to 30 per cent. on pipe the manufacturers have not yet made any change in the price of this commodity. As to the new sales tax, we are not prepared to make any statement as to how this will work out at the present time."

W. J. Elliot, vice-president, J. H. Williams & Co., Ltd., St. Catharines, advises Sanitary Engineer that there is little competition from Great Britain on tools as manufactured by this firm and the recent tariff reduction in the British preference on these tools will, therefore, have little effect.

Another manufacturer of enamelware states that the increase from 1½ per cent. to 2¼ per cent. on sales to jobbers and from 3 per cent. to 4½ per cent. on sales direct to retailers would greatly increase the amount of accounting work necessary, due to the fact that the new tax is an odd amount. In this firm the accounting department was said to have been trebled in size since 1914 and that the expense of accounting work in connection with governmental returns was said to be 25 per cent. of the amount raised. The increasing of the British preference on enamelled ware by 2½ per cent. would not have much effect on business in this country it was said, due to the fact that Canada's biggest import trade in such lines is now and was formerly with the United States even at a time when the British preference was greater than now.

Offset by Sales Tax

G. T. Pepall, director, Samuel & Benjamin, Ltd., Toronto, extensive dealers in metals and steel products, expressed the opinion that any reduction in the tariff was more or less offset in the increased sales tax. Advancing the sales tax doubles calculations in every instance as well as a great deal of perplexing figuring on both sides. An even percentage of sales tax would have been more preferable from the viewpoint of the distributors. It was also stated that the increased sales tax is already on in several instances, such as in metals, especially where the purchases are large quantities or carload lots, and the additional tax represents a considerable sum added to the cost.

In calculating the new tax on sales, it was suggested that the easiest way

was to add 2¼ per cent. and then deduct ten per cent. of that, thus resulting in the desired 2¼ per cent. In figuring out the total sales tax of four-and-a-half per cent., the same principle can be utilized only in this case it is necessary to add five per cent. and then strike off ten, to obtain the result.

One prominent manufacturer who has considerable knowledge of Canadian conditions, stated that the most serious proposal in the entire tariff was the one abolishing the regulation of the old government that in cases of countries with depreciated currency only a fifty per cent. depreciation would be allowed by Canada in figuring out the import duties. He stated that this will considerably reduce the duty on goods from other countries as Germany and Austria. Just what the final effect will be is not clear, but the manufacturer in question thinks it will make certain clases of goods sell considerably cheaper in Canada although competing with Canadian manufacturers.

To the iron and steel industry, the repealing of the Act of last season regarding the limiting of depreciation on foreign exchange to 50 per cent. for duty value is also important. "The door is certainly open for German iron and steel and while shipments of actual material may be almost negligible for some time, the mere fact that a quotation from this source reaches Canada may have a tendency to upset the domestic market," was the statement made by a large Montreal dealer in iron and steel. Although other small wares have found their way out of Germany to Canada through other countries, no shipments of heavier iron and steel materials have so far been traced.

Reports from Europe state that Germany, with a loss of one of her rich fields, is now kept busy supplying the requirements of the devastated areas of Central Europe. However, there is the handicap of most of these countries not being able to pay for their needs, and it is only reasonable to believe that this is one of the reasons why Germany has recently sought and entered, the African and South American markets to an extent.

While there was no cause for immediate alarm in allowing freer access to German iron and steel, this dealer stated that interests on this side will watch developments in the future.

Increases Cost of Living 10 and 20 Per Cent.

"We as manufacturers, believe that while the sales tax is the proper method of taxation, trouble and expense would be saved if collection was made from the manufacturer only. By taxing the Canadian manufacturer, and foreign goods at point of import, there would be an appreciable saving in collection expenses alone. There are bound to be leakages in the present method, and a pyramid is formed, with the goverment making no extra gain, but the customer losing out. Instead of the consumer paying the amount of tax, I believe a conservative estimate is that the cost of living is increased from 10 to 20 per cent. through the accumulating process," said a Montreal manufacturer.

A method of passing the sales tax on to the consumer, and claimed to have worked out satisfactorily during the past year, was explained by a Montreal operator. This shop is located in an outlying section of the city and customers become very well known both to the store proprietor and salesmen, and for this reason a fairly extensive credit business is done with tenants and house owners. Various manufacturing plants are also located in this section, and payment of account are only made by these once a month.

Every thirty days each account on the books is forwarded, and to take care of the sales tax 1½ per cent. last year a "Plus 1½ per cent." was added at the bottom of each statement. This operator states it worked out quite satisfactorily, and while some of his customers at first complained of it, when fully explained there was little or no difficulty in collecting. Although the entry did not read as a tax, it was explained to the various parties that it was added because the firm had to pay this amount, and sometimes more on all goods bought and the government did not expect the retailer to pay. They were also told that the tax was not added in the price of the goods such as was the practice with many other shops. Certain manufacturing concerns had at first complained, but the difficulty here was soon overcome, they no doubt taking a broader view of it, and realizing that they were charged the same amount from the jobber, and a higher rate from any manufacturer with whom they did business.

"What about cash sales?" asked Sanitary Engineer.

"We lost out on these, but it was not altogether a total loss because we charged 1½ per cent. on retail prices on credits, while we only paid this amount on resale prices. While we realize we were only partially covered, it was better to collect part than to lose all such as many other retailers were doing,' he replied.

It was further explained that an incentive was offered for cash payments in this practice, and he was sure that while it was only a small amount, it was considered worth while by some of his customers.

Although this method could be followed out when the lower tax was in vogue, the recent increase in sales tax would involve too much of a loss for them to continue to absorb even a part. With the tax now 2¼ and 4½ per cent., it was too large an amount to "play" with, and the only reasonable way for the plumber to clear himself was to add it to the cost of his goods.

An Interesting Plumbing and Ventilating System

Less Than 5 Pounds of Steam Pressure Heats Prince Edward Hotel, Windsor, Ont.—Five Trainloads of Pipe Used

LESS THAN five pounds of steam pressure will suffice to heat the Prince Edward Hotel in its entirety, according to officials of the Drake Avery Company, Ltd., Windsor and Hamilton, which organization installed the plumbing, heating and ventilating system.

This, while seemingly incredible, is a hard and fast fact, made possible by means of the vacuum heating system used throughout the building. "As a matter of fact," said a member of the Drake Avery Company, "the building can be heated throughout with a few ounces of steam."

While the heating system has its unique features, perhaps even more interesting is the ventilating scheme. All air taken into the hotel for distribution purposes is first heated and then washed and purified with water. It is then blown into the building through immense fans.

The foul air is "sucked" or absorbed from the building by means of other large fans and discharged through certain ventilating apparatus installed in the roof.

Five Trainloads of Pipe

Some idea of the task confronting those who installed the plumbing and other sanitary equipment may be secured from the fact that a quarter of a million pounds of iron piping was necessary for the job, which necessitated the use of five ordinary trainloads, while two carloads of sheet iron for ventilation purposes was used.

Two hundred and ninety-three radiators have been installed in the building, 256 toilets, 202 baths, 46 showers, 265 basins and two electrically driven pumps with a capacity of 400 gallons of water per minute have been placed in basement. All water is filtered before reaching the supply through two 60-inch diameter filters. It is then pumped to the roof into a 10,000 gallon tank from which the building is supplied.

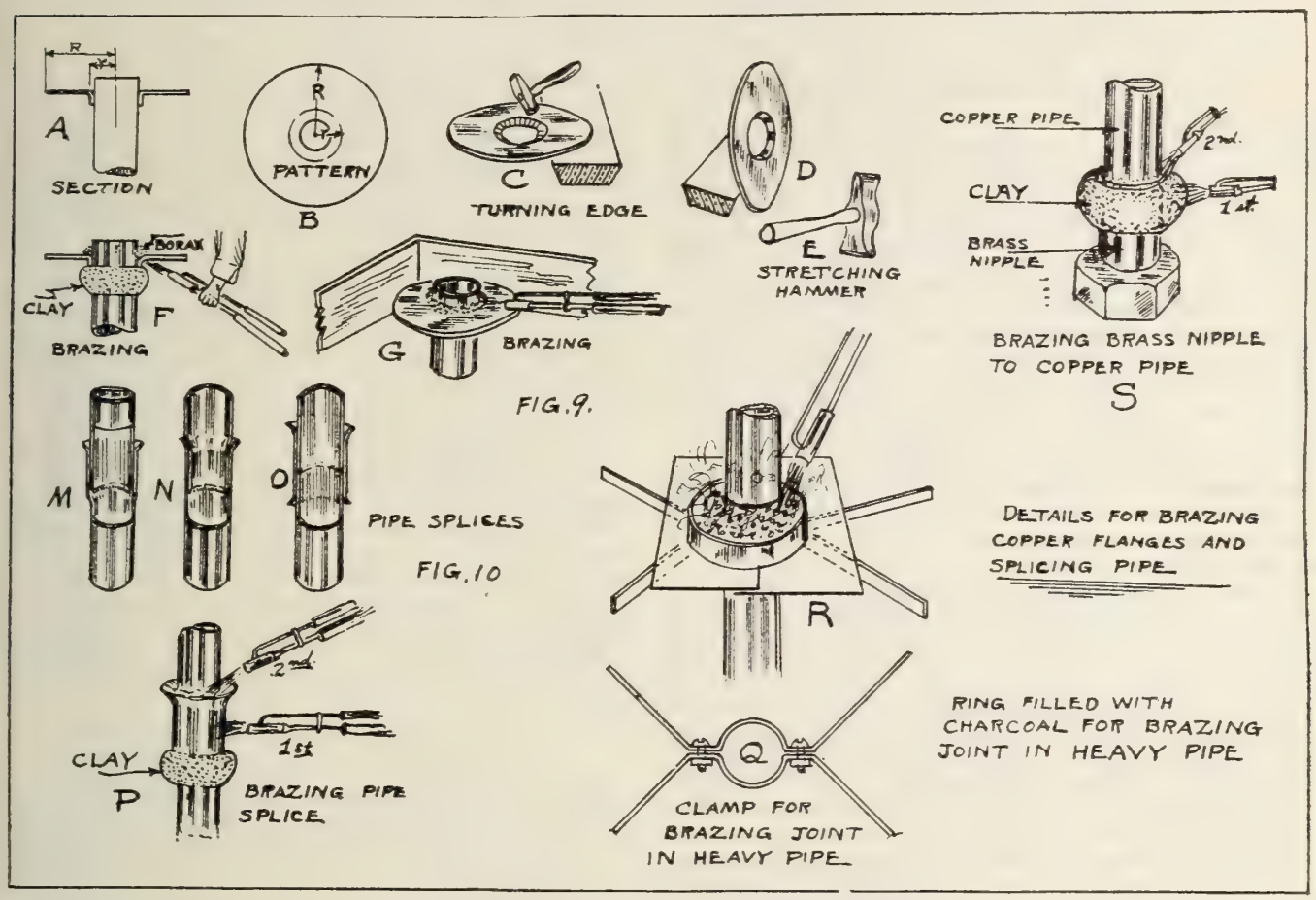
5,000 Gallons Per Day

Approximately 5,000 gallons of water will be consumed daily at the hotel, according to experts who have gone deeply into that part of the equipment, and this is figured on a daily consumption per capita of 10 gallons. It is estimated that providing the hotel is fully accommodated, about 300 gallons will be used by the guests and 200 gallons for culinary purposes and by the employees.

The amount of horsepower used annually will amount to somewhere in the region of 1,752,000, or 4,800 horsepower daily.

Brazing Flanges and Copper Pipes

Written for Sanitary Engineer by O. W. KOTHE, Principal St. Louis Technical Institute, St. Louis, Missouri



Brazing Flanges and Copper Pipes.

A FEATURE of interest to the coppersmith is to make flanges and braze them on pipes.

At A of figure 9 we show a sectional drawing of how the flange fits to the pipe and the radius represented by R and r for describing the pattern B.

The turn down flange must be allowed on the inside of the small diameter indicated by r.

About the first step to start flanging is shown by sketch C, where with a flanging hammer the edges work down, then as at D the edges work over further into a right angle position by means of a stretching hammer as at E.

This prepares the flange for brazing to the pipe and, of course, the workman must see that it is perfectly true and round.

In brazing to prevent the spelter and borax from running through, a bed of clay is wrapped around the lower elge as in sketch F.

A torch is set on the bottom and the clay is heated with the flange from the bottom side, and when this is thoroughly hot the torch is blown over the top, so as to insure a good flow of spelter into the joint.

Sometimes the gas torch is not large enough, or the weather conditions do not work in harmony, and it makes it difficult to braze a flange.

In that case, by placing 2 boards as in sketch G Figure 9, the flame will be more confined to the spot desired and will braze more easily.

Observe the boards placed in a right angle position cause the heat waves to rebound, and in that way, prevent cold air currents from tempering with the brazing.

Another piece of work that is of interest and of common occurrence to the coppersmith is making pipe splices.

This can be done in a number of ways, as some prefer to stretch the outer pipe and insert the pipe in the offset as in sketch M.

Other workmen prefer to draw in the pipe to go on the inside and stretch the outside a trifle, as at M.

Still other workmen prefer to place a coupling around both sides as in sketch O, Figure 10.

This latter is no doubt the best, although there is no objection to the other ones when properly worked.

A flange is bent out of the top of either of these methods to form a ledge for placing the borax and spelter and enabling a better flow into the seam.

At times where the spelter flows away, it is best to place a small ledge of clay as in sketch P.

Then with a torch first heat the lower portion as in the first position and after that shift it to the upper ledge and heat the borax and spelter and cause a flow.

Where pipe is quite heavy, it takes an intense heat to heat the metal and braze the joints, but it is easier to do than on lighter metal, since a person is not so apt to burn a hole.

However, where large pipes of heavy construction are met with, then often an auxiliary heater as at R may be arranged.

A pipe clamp as at Q is made and on which flat plates are placed.

Over this a ring is set and is filled with charcoal.

The charcoal is helped along by means of the torch so that by means of the charcoal and the torch, a flow of spelter and a well brazed joint are secured.

All this requires considerable more looking after and attention than a person can tell in words.

Overhead Expenses in Plumbing Shops

Many Items Commonly Overlooked Should be Included in Overhead Expenses—Estimating and Its Relation to Overhead—Average Operator Entering This Industry Pays Dearly for His Experience.

By J. BRADSHAW, plumbing department J. H. Ashdown Hardware Co., Ltd., Winnipeg

EDITOR'S NOTE.—In the last issue of Sanitary Engineer a number of ideas were given to aid in the stimulation of business. These are being continued in this issue, and much of the success of their application will depend on the principles which govern the conduct of the plumbing and heating business. The following article, written especially for the plumbing and heating operator by one who is thoroughly acquainted with the problems facing this industry deals in an intelligent manner with such subjects as overhead expenses, estimating, etc. What these various expenses amount to when figured on the basis of a $30,000 turnover for the year, are also outlined. The business must be put on a self-sustaining basis before it can be stimulated, so a careful study of this article is justified.

The subject of estimating in my opinion embraces to such an extent overhead, charges and credits, that they are almost inseparable, and for that reason I may seem to wander from my subject.

You are all well aware of the unfavorable publicity that has been and is still given to the plumbing and heating merchants, in fact, you are not generally regarded as such, but as mechanics, and you must be free to admit the cause as well as the cure lies entirely with those engaged in this line of business. Now, why are you not regarded as merchants? For the reason that you have not endeavored to conduct your business along recognized merchandising lines. It is impossible to command the respect of the public or the recognized merchants if you will persist in having your places of business in basements and out of the way places, instead of trying to impress the people with your importance as a merchant, and you surely are an important factor in the world's progress for sanitary and heating appliances and their installation is a very essential part of our natural development and growth.

Lack of Initiative

It seems to me there is a lack of "initiative," that impelling force to make you realize your sphere and step into it. It reminds me of a story of the man who went to buy a pair of shoes. The merchant fitted them on and the man seemed satisfied and departed with his purchase under his arm. A few days later the merchant met this fellow shuffling down the street, was interested, and stopped him and enquired how the shoes fitted. He replied: "Oh, all right, had you cut the string that they were tied together with." Now, gentlemen, it is up to you fellows to cut the string of the past and move more freely. It is impossible to stand still, you either move forward or else you slip backwards.

I am convinced that the trade are doing directly opposite to that which is natural. Did you ever observe the plants and flowers that sit in your window sill at home, how they are continually reaching and growing towards the light, which nature intended they should? and here we find this line of business men forever trying to hide from the light of favorable publicity.

This condition is brought about by "ignorance." Now I do not mean to convey that those engaged in this business are illiterate, nor do I wish to imply that they are not capable and intelligent, but mean ignorance of the laws of merchandising, or in other words, estimating, and that naturally comes from environment and custom over which at the time the average person has little or no control. Let me give you an example: two boys are leaving school, to start their journey in life; one enters a mechanical line, the other starts to clerk in a store. Generally speaking, the boy learning the trade is regarded as having the best prospects, but personally I think the clerk has the best opportunity. Why? Because he is immediately brought into touch with the public and learns how to properly approach a prospective customer and to effect a sale. He understands and appreciates the value of personal appearance and you must admit its importance. He is at once in touch with selling prices, and gradually gets a knowledge of costs and learns there is a necessary spread between cost and selling for the purpose of taking care of overhead expenses, and soon knows how much that should be to successfully conduct a business. In a word his early training is merchandising coupled with a knowledge of the goods he has to sell. How about the other boy? He does not come into personal contact with the purchasing public, and therefore does not consider appearance. Naturally he does not get the opportunity to learn how to sell. He is not acquainted with either the selling price or the cost of the goods he is handling. His ideas of overhead are nil; he learns only to be a skilled mechanic, but the opportunity for salesmanship, and that knowledge of merchandising is lacking in his early training. Is that not true?

Educating the Apprentice

Now the question of educating the apprentice in this business has to be given serious consideration so that in the future those who enter it will have some ideas of how to conduct a business as well as being skilled mechanics.

Therefore you will agree with me that the average man entering the plumbing and heating business has little if any knowledge of merchandising; is handicapped for the lack of it and usually pays dearly for his experience, and while he is acquiring it the rest of the trade generally suffers through unfair competition. The supply houses also feel this condition keenly, for if work is being taken too cheap, credit risks are greatly enhanced and it naturally reflects on all those engaged in that particular line of business. It might be well to bear in mind that the man or firm with the largest bank account is not always the best risk. Do not forget there are such things as moral credits, the man who understands his calling, has the ability to persevere, who attends strictly to his business, and who makes an honest effort to meet his obligations when due, or if unable to do so finds the time to explain matters, receives far more consideration than the dilatory person with the bank account.

This brings us to my topic. Do you seriously realize the importance of correctly estimating each and every job, whether large or small? No two jobs will work out the same, and it is a grave mistake to use short cut rules to arrive at a cost. Estimating every job on its own merits will be found to be the safest and sanest method, and after each contract is completed do you know positively whether that particular piece of work has shown a profit or a loss? If not, you should.

When estimating close, which seems to be the order of the day, particularly in small work, you should bear in mind that the loss of six or seven hours' time, which, for instance, could easily happen with an unfortunate test, means considerable of your profit, especially when I understand you are estimating on a basis of 5 or 10 per cent profit. I have an idea of the way some of the trade do their estimating. They are finding the cost of material and, let us say it is $200, and

then they add to that $40 labor, making a total of $240, on which they add ten per cent., or $24, estimating profit. Some will naturally say: Well, that looks all right; $40 labor and $24 profit. It may look all right on paper, but will it stand the scrutinizing eye of facts? I think not. Let us check it over.

To simplify matters let us use as a basis of discussion a $3,000 turnover. Now let us work this out on the blackboard.

Salaries.—Let us assume you are looking after all your work yourself, and just employing office help. You would not care to draw a salary of less than $2,000, and you are paying $900 a year for office help. This makes a total of $2,900, or 9.66%

Rent.—A fair rental would be $40 per month, or $480 a year, or 1.60%

Heat and Light.—These two items would vary somewhat, but let us use $100, or..... .33%

Taxes—On this turnover would run $76 for Municipal and Provincial, made up as follows:

Auto, provincial	$15.00	
Truck, city	10.00	
License	3.00	
Rental, 10% on $480.....	48.00	$76.00

and using 20% of turnover as wages, or $6,000, at 1.40%, which is the amount to be paid for Workman's Compensation Act, makes $84.00. So we find taxes for the year $160, or approximately .53%

Stationery, postage, telephone, incidentals (including subscriptions and advertising), would amount to at least $200 per year, as follows:

Phone	$63.00	
Postage	24.00	
L. D.	12.00	
Express	12.00	
Stationery	30.00	
Freight	8.00	
Advertising	36.00	
Ex. cheques	10.00	
Total	200.00	or .66%

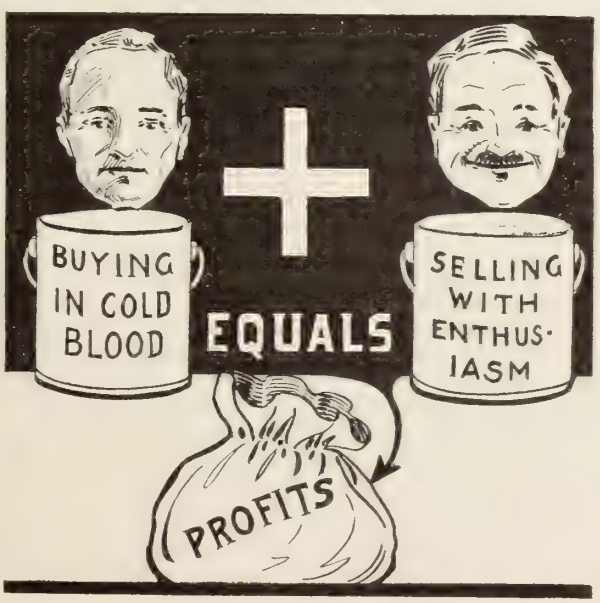
Interest and Insurance.—We can safely say on a turnover of $30,000 that stock, together with fixtures and equipment and automobile, would be $3,000, and at 8%, $240. Insurance on that amount at 1%, $30. Total $270. Possibly you do not carry insurance, if you are not injuring your credit 90%

Bad accounts—You would be fortunate indeed on this amount of business if you lost only $300, or 1%

Depreciation on new tools and purchasing new equipment.—Would very easily cost $200, and this I think a very conservative estimate, or..... .66%

Automobile—A necessity that has come to stay, and used by 90% of those engaged in the business, and is a direct charge. In fact, your largest expense next to salaries, and one that should produce something. It used to be the custom to allow for cartage in estimating; today I understand this is generally omitted, and while it is true most of your goods are delivered on your jobs by the supply houses, you must agree that your cars are mostly used for cartage purposes, and in allowing $50 per month for gas, oil, repairs, new tires and depreciation, which is not out of the way, amounts to $600 per year, or 2%
Gas $300; oil $15; repairs $75; tires $60; depreciation $150. Total $600.

When we add all these together we find approximately 17.34%



Some of you will probably say: Well, we are not doing $30,000, and we are working from home.

All right. Let us say $10,000 turnover, with shop at home and what do we find:

Salary.—You would not care to work for less than $2,000 a year, and let us assume that only 1-3 of your time is non-producing, or $666, that equals 6.66%

Light and heat.—It is only fair that a portion of this amount should be charged to your business, and taking your light and heat bill at $100, allow 1-3 for business, or $33, or ..... .33%

Rent.—You likely will say it does not cost anything extra. True, but should not your business pay for part anyway? The average house will cost $30 per month, and let us also use 1-3 of this amount, or $120 per year, or..... 1.20%

Taxes.—Approximately $43, made up as follows:

Compensation on 20% of turnover as wages, or $2,000.....	$28.00		
Business tax	12.00		
License	3.00	$43.00	or .43%

S. B. T. etc.—Proportion is more than 1-3 of telephone account, say $90, or..... .90%

I. & I.—1-3 of first column, $90 or..... .90%

Bad Accounts.—Notice we are using the same percentage, $100, or 1%

Depreciation and new tools, $50 which is a very small amount, or .... .50%

Automobiles—Will cost you just as much as the man with the large turnover, $600, or 6%

Altogether 17.92%

Plumbers Working From Homes

For the benefit of those who are working from their homes and have no auto, what do we find. It will be necessary for them to spend more time on unproductive work; I mean by that, work from which you receive no direct returns, so that your salary instead of being 1-3 non-productive will have to be changed to ½, which will change the percentage on salaries from 6.66% to 10%.

Your incidental account will be greater as you will use more car fare, have more expense for cartage, etc., and a reasonable increase would be from $90 to $150 a year. The balance of the items would remain practically the same, and when we add up this column we find a total of 15.86%.

Turnover $30,000

	Amt.	P.C.
Salaries	2,900	9.66
Rent.	480	1.60
Heat & Light....	100	.33
Taxes	150	.53
S. P. T. etc	200	.66
Int. & Ins.	270	.90
Bad accts.	300	1.00
Tool acct..	200	.66
Automobile	600	2.00
Total		17.34

Turnover $10,000

	Amt.	P.C.
Salaries	666	6.66
Rent.	120	1.20
Heat & light.. ..	33	.33
Taxes	43	.43
S. P. T. etc. ...	90	.90
Int. & Ins.	90	.90
Bad accts.	100	1.00
Tool acct.	50	.50
Automobile	600	6.00
Total		17.92

Turnover $10,000

	Amt.	P.C.
Salaries	1,000	10.00
Rent	120	1.20
Heat and light	33	.33
Taxes	43	.43
S. P .T. etc.	150	1.50
Interest and insurance	90	.90
Band accounts	100	1.00
Tool account	50	.50
Total		15.86

Average of 17.04%.

Now bear in mind that we have not allowed any office expense whatever in the last two columns. That means you do your own bookkeeping and collecting. Now, who answers your telephone? Possibly your wife. Is it fair to use her as part of your business equipment and not charge your business for her services? It is no one's business who answers your phone, or helps keep your books, but as it has a direct bearing on the cost of doing business it should be considered.

The above figures have been compiled after being collected from various sources and after careful consideration, and while we would not care to say that they are absolutely accurate, it can be taken for granted that they are generally so.

Overhead 17%

Your overhead on an average then will be approximately 17%. Now then, what happens on the above mentioned contract? Instead of showing a profit of $24 as anticipated, you have a loss of $16.80; therefore it must be borne in mind that it is necessary to make approximately 17% on your estimated cost to pay expenses, always keeping in mind the fact that your contracts are working out as per estimate. If you would use 25% on your cost it would mean less than 10% profit, which would have to bear any loss from inaccurate estimating as it is not taken care of in overhead expense.

Do you take care of the so-called small items when estimating such as oil, gasoline, rubber, bolts, screws, putty and numerous other items? Listen: Every time you connect a sink you use screws and a sink gasket which costs about 9 cents; you use screws again on every closet and basin. In setting a closet you use a tin of putty worth around 12 cents. Every range boiler you set means union washers and then again how many bibb washers do you use in proportion to what you buy? A large number are wasted through carelessness and these cost you 2 and 3 cents apiece. These appear small, but their total in a year is large enough to make you realize their importance. It has been truly said that it is the little things in life that count, and can it not be truly said of business that it is the little things that absorb the profits?

Do your men not usually take more time to complete work than you allow on your estimates? I make mention of this for the reason I have heard so many say their men are not pulling out on time. Have you carefully checked the time you are allowing and is there not a possibility of your underestimating the time required? We do not always place the blame where it properly belongs. This deserves close checking.

Underestimating of Labor

Underestimating of labor and the omission of material often leads to the skimping of your contracts. Some people adopt any means to cover their own mistakes, and what is the result? Loss of prestige, and that is another reason why people lose faith in the plumbing and heating trade. Remember you are not judged individually, but as a whole; and the responsible man has to suffer for the other's shortcomings. Do not forget this fact. If you make mistakes, which anyone is liable to do and we all do, take your medicine and do not try and get from under by unfair means and I am sure you will find that you will be further ahead in the end.

Some are all too ready to blame the jobbers for all your difficulties and not willing to give them any credit for trying to correct conditions but, believe me, the supply houses are always willing to play fair and will lend at any time a sympathetic ear to your grievances or difficulties and are only too pleased to try and assist in any way to improve your conditions as the betterment of yours naturally benefits them.

The keynote in business today is service; we expect it from the manufacturers, you in turn expect it from us, and the public expect and should receive it from you. You will find that service pays the largest dividend.

Before I close I think I should say a word or two with reference to association work. I have been connected more or less with it for a number of years, and the more thought I give it the more important it seems to become. It is a necessary part of your business life and will be the means by which you can better your own conditions, and in bettering yours it most naturally follows that those you come in contact with will also reap some of its benefits. There is no height to which you cannot attain if in your deliberations you will let confidence be your watchword, for that is the essential of successful co-operation. Confidence in your own ability to play fair and confidence in your competitors. Do not always jump at the conclusion that your competitor is cheating; get the facts first.

Some years ago I read a few lines which I have never forgotten, and I think they are very applicable.

"Be true to thine own self and it must follow as the night the day, thou can not then be false to any man."

QUESTIONS AND ANSWERS

USE OF ACTIVATED SLUDGE SYSTEM IN CANADA

REPLYING to a subscriber's enquiry as to the disposal of sewage by the activated sludge purification system in Canada, we would point out that this system which is now being adopted extensively in England at the present time has been permanently installed by six municipalities in Canada, chiefly in Ontario, (the writer not knowing of any installations in the Western provinces,) so this system of purification is not altogether new to us in Canada.

The activated Sludge system has been installed by the towns of Brampton and Woodstock and up to the present time has given satisfactory results in all temperatures.

The writer is not able to state from experience the effect of the extreme cold western temperature on the tanks, but might add that sewage is generally discharged in the sewers in a lukewarm state and the only possible difficulty in this climate, with reference to the system being affected by the cold weather would be in the sludge compartments. But in all the provinces of Canada where the temperature does not fall too far below zero we are of the opinion that the system will be a success and much used in the future.

The tanks, like the Imhoff, could be roofed during the winter months if the cold was found too severe but in some of the installations in Ontario this has not been found necessary and we can see no possible reason why the temperature in Ontario, British Columbia, Prince Edward Island, New Brunswick and Nova Scotia would have any detrimental effect on the working of the Activated Sludge Sewage System installations.

We might add, that the system has been thoroughly tried out in Milwaukee, Wisconsin, and has given excellent results so much so that Toronto engineers have visited this city on one or two occasions and are seriously contemplating a similar installation for the treatment of this city's sewage.

A PROBLEM IN WATER SUPPLY

Further advice having been received from H. Fredetts, Plantagenet, Ont., concerning a waterworks to be repaired, the following additional information is given to supplement the first reply given in February 15 issue of Sanitary Engineer.

From sketch received the basin is located between two hills at a level of 75 feet above the village to be supplied, so a gravitation system can be installed giving ample pressure on the service mains for all purposes.

Source of Supply

From data enclosed the water-logged

(Continued on page 21)

About the Same:—North: "Do you let your wife have her own way?"

West: "Absolutely. And when it comes to rain I let it rain, and when it wants to snow I let it snow."—American Legion Weekly.

* * * *

The Retort Crushing:—Traffic Cop—Say, you! Didn't you see me wave at you?

Mirandy—Yes, you fresh thing, and if Henry were here, he'd paste you one for it.—Sun Dodger.

* * * *

Fooled Him:—"What?" roared the father. "You ask me for my daughter's hand?"

"Y-y-yes, sir," stuttered the bashful lover. "I didn't think it would do any harm."

"Well, by gravy, you'll find it has. You can have her."—American Legion Weekly.

* * * *

Nothing Doing:—"Mandy, I think I'se gwine put on my bes' clothes and go down to de theayter ternight to see de chorus ladies dance."

"Rastus, listen heah. If dat am whut yuh thinks, then yuh'd bettah think again. Niggah, yuh an't gwine to put on nothin, to go no place no time to see nobody do nothin' never, nohow, an' not at all. Does yuh understan'?"

* * * *

At the Motor Show:—Lady—This is the car I want.

Salesman—Shall I drive it home for you?

Lady—No, drive me home in that big one over there.

Salesman—But I thought you wanted this small one.

Lady I do. When hubby sees the big one he will compromise on the small one.

* * * *

Does She Work on Wheat or Barley?

An enterprising Canadian company advertising a certain make of electric washer was amazed one morning to find the following letter in the morning mail:

"Dear sir: Your macheen shee look good to me. How many galons will she hold and how much money will it cost to put pipe for cooling in. Does she work on wheet or barlie. You work great bluf on wash macheen. I laf. You let me know what you take to fix me up?"

When a Plumber Makes a Mistake He Charges Twice For It!

Much Gratuitous Advertising Which "Knocks" the Plumbing Business

Written for Sanitary Engineer by MAJOR L. L. ANTHES, President Anthes Foundry, Ltd.

ARE YOU prepared to back up a statement like this?
Is it likely to help your business?
Is it a fair reflection on the plumbing trade at large?

You dont think so. Neither does anybody else who has an intelligent knowledge of the trade.

Nevertheless, such a statement is posted prominently in a Queen street (Toronto) window in the crowded downtown section where all who pass may read it.

It is used as a supposedly ingenious method of advertising—calling to the public attention the evils in various trades and professions to emphasise the merits of what the particular advertiser has to offer the community.

It is the old story of "Give a dog a bad name and hang him." The plumber has been for many years the butt of comic papers and would-be wits, and has made so little effort to combat or refute the aspersions aimed at his calling that the public seems to regard the trade generally in the light of ridicule and look on the plumber more as a necessary evil than a reputable citizen. If a manufacturer made a jest of his own product in his advertising the reading public would think him crazy, and he would be ridiculed (and justly so)—and what would become of his business?

Now I know the plumber does not advertise in this way, but nevertheless he gets a lot of gratuitous advertising which "knocks" his business and gives the reading public the wrong "slant" on the plumbing trade. Don't you think you ought to do something to stop this silly practice of the cheap wit?

My experience in the newspaper game has convinced me that no publisher is desirous of offending his readers, but on the contrary he wishes to make his paper or magazine popular with everybody and if anyone or anyone's business is being inadvertently hurt through the news or "joke" columns, the average editor is only too willing to right the wrong.

There is no good reason why plumbers in different centres cannot get together in small local associations or clubs and have as their aim the betterment of the trade.

When they take exception to anything which they feel to be unfair in the matter of publicity they can act as a unit, and I think they will prove to themselves before long the wisdom of the old adage "in unity there is strength."

See what the farmers are doing. Disorganized they were a myriad of discordant voices crying in the wilderness. United they are a political and social factor that has got the old time politicians rocking.

Get together boys and smite the philistines.

When the plumbers unite on construction lines for the betterment of the trade the jobbers and manufacturers will be only too glad to back them up. But it requires honest effort and surely the good name of the trade is worth protecting. It is the way to more and better business.

Sanitary Engineer
Plumber and Steamfitter of Canada

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The Bathtub

WHEN Adam Thompson in 1842 built the first bathtub in Cincinnati, he was roundly denounced by the doctors, who declared that the use of the contraption would lead to rheumatic fever and inflammation of the lungs.

About the same time, Boston passed a city ordinance making bathing unlawful save on the advice of a physician; Philadelphia considered, but failed to pass, by a margin of two votes, a measure making bathing illegal between November 1 and March 15; Virginia by legislative action laid a tax of $30 on all bathtubs.

An American president, Fillmore, was widely ridiculed when in 1851 he installed a bathtub in the White house, but it is quaintly averred that "his action so far removed the prejudice against the device that by 1860 nearly every leading hotel in New York City had a bathtub."

The American pioneers, apparently, thought the bathtub was one of the minor vices of the idle rich.

Then, too, people lived in drafty shacks, heated, (in spots) by stoves and fireplaces, and there is no doubt that a person who took a bath in winter, under such conditions, did so at considerable risk.

The elite of all eras have to some extent indulged in baths, but it is only in recent years that serious inroads have been made upon "the great unwashed."

"A bath in every home," the slogan for a campaign now being conducted by the plumbers, excites no wonder. It is plainly and frankly in the interests of business, and it implies no revolutionary change in public habits and thought. But "A Bath Every Day," the companion campaign presents an idea so radical as to be startling. It is much as if the druggist who sold us our tooth-brush were to ask, when we step in for the daily milk-shake, whether we had used it that morning. It is even more revolutionary than that, for there is good reason to believe that the tooth brush habit has outstripped the bath habit in the race toward modern standards of personal hygiene. The tooth brush is daily used in homes where Saturday night still holds its unique distinction in the family calendar, and the druggist's query would be accepted as a matter of course by many who would gasp in indignation and amazement at the plumber's.

The parallel, once it is suggested, invites speculation. If this is true, why has it come about? Why, indeed, unless it is because the manufacturers of tooth brushes and tooth paste have been so zealously engaged during the last score of years in advertising their product to the public, in constantly reiterating the importance of clean teeth to general health, and in keeping the subject continually in the minds of all who read, while plumbers have generally gone about their work in silence?

Surprise over the new idea of the plumbers dwindles before reflection along this line. No reason appears why persistent educational publicity by the plumbers and manufacturers of plumbing goods, teaching the value of the daily bath as a way to keep the doctor away, should not be as effective as has been the campaign of the dentifrice industries. This is the new sort of salesmanship, the salesmanship that aims at the benefit of the customer with an indirect reaction to the profit of the salesman as an ultimate certainty. It is this broader conception of merchandising that is bringing to many industries and businesses a dignity befitting the professions.

Improving Prospects

THAT INDUSTRIAL conditions on this continent, even at the peak of the depression, were not as bad as was commonly thought, is the opinion now being set forth by certain students of economics. In this connection it is interesting to note that the average industrial production at the time of the depression was at the rate of seventy per cent., compared with normal, and is now about 95 per cent. Published statistics of industrial operations, unemployment, etc., have made the situation appear very bad because of the tendency to compare these conditions with those of the war-time boom when production of existing plants as well as that of new plants was greatly stimulated to meet requirements.

Thus a comparison of present industrial conditions with those of normal times would, it is claimed, show current conditions to be much more favorable than is generally supposed. Actual suffering due to unemployment has not been as aggravated recently as in former times of depression, and now that excess stocks of all kinds have been generally disposed of manufacturing output is being gradually increased. No outstanding improvement is anticipated until export markets develop and until the spending power of the individual has increased, but meanwhile there is a steady and increasing demand for necessities such as hardware, and the outlook in export markets is reported by a number of Canadian manufacturers who have recently returned from abroad to be greatly improving. This will no doubt encourage manufacturers to produce with assurance that any overloading of the domestic market which would ordinarily be experienced can be taken care of by export trade.

May Be Handicap to Merchandising

THE AMENDMENTS to the Budget of the Minister of Finance as made just prior to the adoption of the measure make some changes of interest to the plumbing trade. The change in the stamp tax will be welcomed as some slight alleviation of the difficulties expected from the former legislation. The automobile tax is reduced on cars valued over $1,200. Provision has been made for valuing for duty goods imported from countries where the currency is at greatly depreciated value on the basis of the English value of such goods. This will likely make little difference in the practice followed by importers under the former regulations, namely, importing German merchandise through Holland.

The new tax on receipts, as dealt with elsewhere in this issue, is one of the most interesting changes because of its novelty on this continent. A leaf has evidently been taken from the experience of European countries in this regard where this tax is applied in such a way as to be productive yet not onerous. The regulations have yet to be framed for the Canadian receipt tax, and in so doing it would be well for the government officials to keep in mind the fact that the present operation of the Sales Tax is such as to make any further increase in the plumbers' overhead expenses most undesirable. A tax on counter receipts payable by the party issuing the receipt would not only increase operators' overhead expenses but be a distinct handicap to merchandising comparable to the luxury tax stamps formerly in use. Means are wanted to-day to facilitate merchandising rather than to make it more difficult.

The Facts Family

How Shaking the Apple Tree
Proves the Strongest Stems

or

The Story of What and Where
and the Important Children

YOU see in this cartoon a business man diligently taking a course in FACTS at Success University. He is a wise man, earnestly studying the most important part of the curriculum.

FACTS are vital to the man who would take a diploma in Success. They mean more than wealth, position or influence.

They are the difference between **know** and **blow.**

They are the substance you find in the solid ground of Ability and miss in the quicksands of Bluff.

They are the children of What and Where—the brothers of Who, When, How and Why.

Study FACTS if you want to succeed, KNOW—if you want to grow.

To-day, you hear businesses compared to apples.

"They are shaking the trees," say the students of business, watching many establishments fall.

But you'll observe too, that all the apples do not fall. Some hang on. Their stems are strong and hold tight. They will be hanging when the shaking ends.

Those are the apples whose stems are FACTS.

Those are the concerns who know as much or more than anyone else about their products or their methods, or merchandise—the men who know **how** to sell, **when** to buy, **where** to locate, **why** to advertise, **who** to see, **what** to do.

And you may be assured that knowing the FACTS about your business you too are as secure as the apple with the strong stem.

But do you know? Or is it high time that you enrolled in Success University and started a diligent study?

Only you can answer. Only you know what you know. Competitors can soon learn what you don't know.

And remember this—no one knows it all—no one can afford to stop learning. Therefore, cultivate the FACTS family always. Maintain a friendly, constant acquaintance with How, Why, What, Where, When and Who. They're **profitable** friends.

Setting A Limit On Credit Extension

Master Plumbers and Supply Firms Agree That Credit Should be Limited to Half a Month's Earning Power of the Customer—Path of Least Resistance Leads to Ruin—Plumber With Loose Credit System a Poor Friend to Customer

Written for Sanitary Engineer by ROY A. HUNTER

J. P. MORGAN is credited with a remark to the effect that "the man is 90 per cent. of the risk," by which he simply meant that more important than the details, the causes, reasons, and the purposes, is the moral character of the borrower.

One credit manager of a supply firm in Vancouver, in discussing the credit business as it affects plumbers stated that while the appearance and personality and reputation of a prospective credit customer does and always will predispose a plumber to either give the applicant credit, or to refuse to do so, one vital piece of information is, WHAT ARE THE MAN'S ASSETS, WHAT HIS INCOME.

"This was forcibly brought to my attention recently in connection with a business in one British Columbia town, that went into liquidation. The book debts were far too large in proportion to the amount of business done—but the striking facts that a glance over the list of accounts disclosed were that laborers, school teachers, and others with comparatively small wages and salaries had been given credit amounting to two, three, and five hundred dollars. Is it not evident to any plumber that a wage earner, even if steadily employed, who probably brings home each Saturday thirty to forty dollars is not entitled to a hundred dollars credit. Nor a salaried person who draws twelve to fourteen hundred a year entitled to two hundred dollars credit— much less five hundred.

Setting a Limit on Credit

"It should readily occur that it is a suicidal business policy to extend more credit than half a month's earning power can clean up. I have one man in mind in the Fraser Valley who positively will not grant more than fifty dollars credit to a mill-hand earning $125 per month. When that point is reached, further credit stops till the amount is paid up.

"I have thought at times," continued this executive, "that if I were to commence in the plumbing business with my experience behind me, I would conduct a strictly cash business; but as a matter of fact I think I would conduct a credit business. The fault is not with the credit business, which has much to commend it. The fault, in all cases is that the plumber does not give credit as he knows he should, but follows the path of least resistance till brought up short. The wholesalers conduct a very large percentage of their business on a credit basis. That their credit losses are only a fraction of one per cent. in normal times is due solely to the fact that they have a system. If the plumber would require from his customers, the information that his wholesalers require from him, he would not get tied up.

"The trouble is that many people are so optimistic that they mortgage the rosy future. On the expectations of a bumper harvest the farmer makes his immediate purchases. On the expectation of a bountiful fruit crop the grower runs up his charge accounts. If their hopes are materialized—the bills are paid and they are encouraged to do it again next year. If the proceeds do not come up to their expectations, they are forced to disappoint their creditors, and no matter how strong their intention to pay, it is a physical impossibility to pay out more than they receive, no matter how inadequate their receipts.

A Poor Friend to Customers

"In my humble opinion, the plumber who gives 'cheerful credit' and abets the customers in thus gambling on the future, and speculating on their unharvested crops, and unearned wages is really a poor friend to those consumers."

The credit manager of a large firm, in speaking of a system of collection letters for which he had subscribed said to the writer, "If this system had not collected any accounts at all, and it has collected many, I would consider the money well spent that brought home to me the truth that the plumber should have more particulars about those with whom he is dealing and to whom he extends credit. How easy it is at first to find out a couple of friends' names—probably the one who introduced the customer. In case that person moves away with a balance unpaid, it is so helpful to ask Mr. Jones 'By the way, where is Fred Smith now? I often wondered where he had gone.' Chances are the information will be forthcoming and the plumber knows at least where the delinquent is. It is so easy to jot down this additional information on the new ledger sheet, and so hard to trace a customer after he is gone, if you have no lead at all."

Another credit manager states, "The greatest temptation that the plumber is up against, is to continue giving more credit to the delinquent on the assumption that the whole debt can be better collected in that way. Let every merchant consider the actual fact, substantiated by hundreds of actual cases, that the collectible portion of bad debts—ordinary bad debts—is around 25 per cent. if a bank or an assignee has to take them over.

"Any and every plumber is much better with the goods in his shop than turned over to a customer who has proven that he cannot square up at the the end of his 30 days."

Still another credit manager spoke about notes. One up country plumber asked Sanitary Engineer if it is good policy to take notes from delinquent customers. As far as a banking proposition, this credit man said, "No," adding that even if the bank discounted them—if they were not paid on maturity the bank would require the plumber to make good. But it was desirable, he said, to close up all overdue accounts with notes for the reason that in this way the amount is acknowledged. If any kind of legal action is necessary, the note shows that the amount cannot be questioned. Only the signature needs to be proven genuine—whereas actions taken on open book accounts are always liable to all kinds of counter-claims and disputes that entail much more delay and expense. Probably the best collecting asset, however, is fear of publicity. This will make many pay who cannot be touched in any other way. Some of the most effective collection systems make use of the fact that book accounts may be publicly auctioned off!

ANACONDA COPPER SUBSIDIARY ENTERS THE CANADIAN FIELD

Anaconda Copper Company, an important concern in the U. S. copper industry is entering Canada through its subsidiary acquired last year, the American Brass Company, which is completing arrangements for the acquisition of the Brown Copper and Brass Rolling Mills Ltd. at New Toronto, Ont. Several representatives of the American Brass Company have been conducting negotiations with the Toronto firm in New York.

The American Brass Company, itself a subsidiary, operates seven plants and the normal turnover of the smallest of these is $50,000,000. Anaconda Copper is rated as a $150,000,000 concern. It is reported that a new plant may be constructed in Toronto shortly to work in conjunction with the Brown Mills, and that Anaconda is negotiating for some zinc-copper properties in Western Canada.

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights —Keep the Entire Series Where It May Be Referred To And Studied

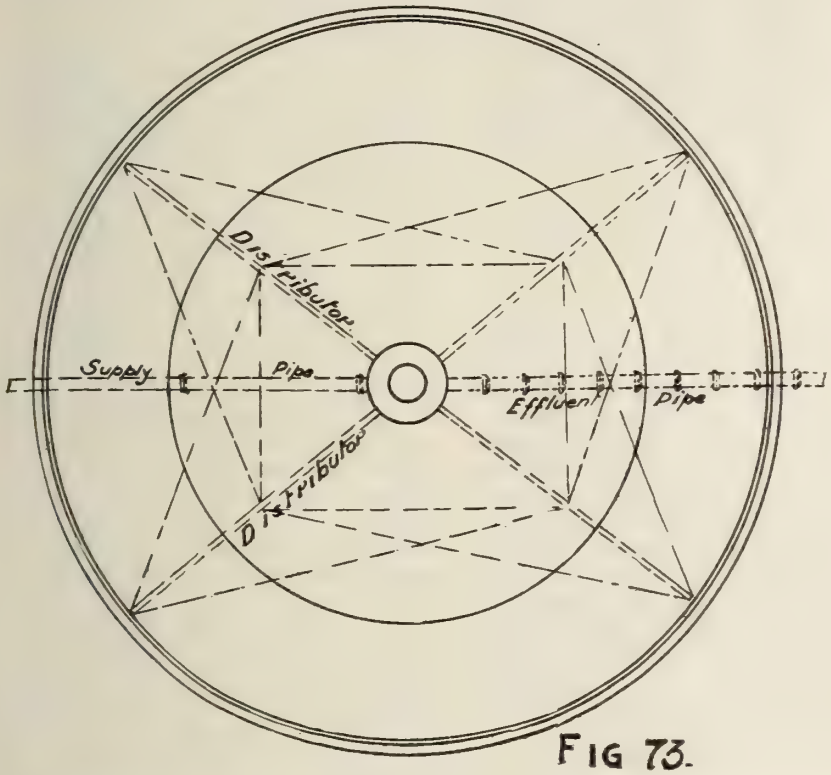

FIG 73.

(Continued from last issue)
Depth of Filters

The minimum depth of the medium of a percolating bed should be 4 feet generally, at least 18 inches extra is required for the automatic distributor and drainage, making a total minimum depth of 5′ 6″. The maximum depth should be 10 feet for filtrant but providing sufficient fall, can be obtained for drainage and distribution, 6 feet is sufficient for the majority of cases as it gives excellent results and permits not too coarse a filtering medium being utilzed in the filter.

Figs. 73 and 74 show a plan and section of a circular percolating filter sunk in the ground with an automatic circular sprinkler. The supply pipe is carried through the centre of the bed and feeds the distributor.

The bed is constructed as shown, of earth, having a lining of 6 inches thick of concrete to make same watertight, the floor being formed of the same material, sloping toward a central effluent outlet channel which, to facilitate the quick drainage, have open jointed tile drains along the floor which connect direct to the central collecting channel from which is connected the effluent pipe which conveys the purified sewage to the effluent outfall.

SAYS PLUMBERS NOT CONVERSANT WITH UP TO DATE LAWS

Woodstock.—In regard to an inspector of plumbing, Alderman Hill wanted to know if the members of the Board of Health were unanimous in wanting a plumbing inspector.

Dr. Ruttan replied that so far as having a plumbing inspector on a regular salary, the board was not unanimous but the members did agree that it would be desirable to have a plumbing inspector who would be paid so much a job. Dr. Ruttan repeated his previous statements by saying that there are many cases of defective plumbing in the city, and he believed that something should be done to protect the people against improper plumbing. He did not believe that the average plumber is conversant with the up-to-date laws governing plumbing, and he thought it was high time that some action was taken in the matter which has much to do with the general health of the city.

Alderman Sales wanted to know if the doctor proposed to compel the people to have plumbing inspection.

Dr. Ruttan said no, but he would like to guarantee them the satisfaction of knowing that their plumbing was all right.

Relative to the law which requires plans for cesspools to be submitted before the pools are constructed, Dr. Ruttan complained that this law has been entirely disregarded.

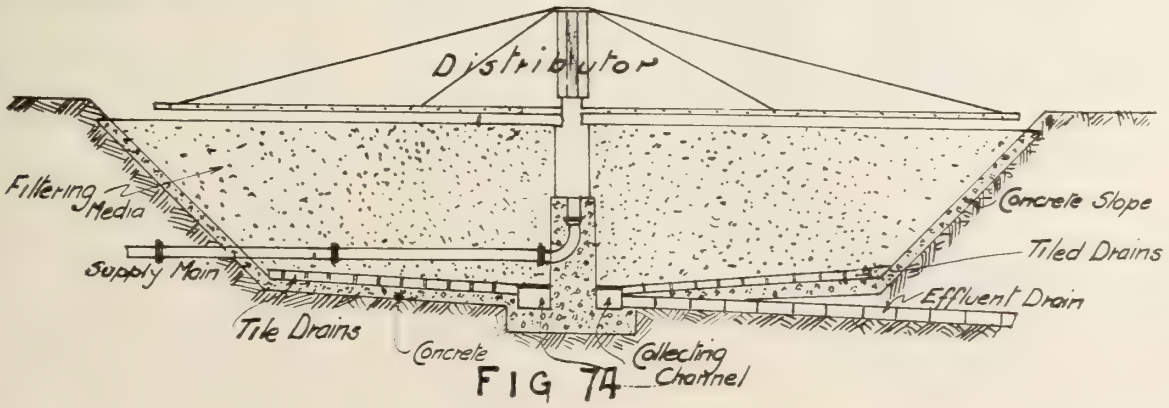

FIG 74

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

BUSINESS CHANGE

Sutton, Ont.—Jenne Bros., plumbers, have sold to Mr. Connybeare.

PLUMBERS ORGANIZE

St. Catharines, Ont.—As a counter to the declaration of open shop by the master plumbers of St. Catharines, striking plumbers have launched a co-operative plumbing company, and propose to continue work in competition with their former employers.

FORM CANADIAN CHAPTER OF HEATING AND VENTILATING ENGINEERS

A Canadian Chapter has been formed of the American Association of Heating and Ventilating Engineers, to be known as the "Canadian Division, Ontario Chapter." The membership is at present about 35, the first meeting was held June 2, when the following officers were appointed:—M. H. Thomas, president; H. H. Angus, vice-president; A. S. Leitch, secretary, and A. J. Dickey, treasurer. Monthly meetings will be held in Toronto.

PLUMBER'S WAGES SET FOR TWO YEARS

There will be no reduction in the wage of union plumbers, of Toronto, which is 90 cents an hour for the next two years.

The announcement that an agreement to this effect had been signed with the Master Plumbers' Association was made by General Organizer John W. Bruce, after a meeting in the Labor Temple, called to give members of the Plumbers' and Steamfitters' Union an opportunity to pass upon the agreement. Negotiations between a union committee and representatives of the association have been in progress for some time. There will be no important change in the conditions, it was also stated by Mr. Bruce.

PHILADELPHIA PLUMBERS PAY VISIT TO TORONTO

Seventy-eight members of the Master Plumbers' Association of Philadelphia, arrived at the King Edward Hotel, Toronto, having spent two days in Buffalo and Niagara Falls. The members of the association were on the last lap of a two week's tour, in which they have covered most of the larger cities of the United States; the purpose of the trip was for pleasure only. They left by boat for Montreal, and will thence return in a fairly direct route to Philadelphia. Toronto and Montreal were the only two Canadian cities visited by the party. William H. Ambrose, of Manayunk, Philadelphia, is one of the officers in charge of the trip.

PLUMBING BY-LAW TO BE AMENDED

Quebec.—A delegation was received by the Civic Public Works Committee, from representatives of the local branch of the Builders Exchange asking that means be taken to enforce the sanitary plumbing by-law immediately. It was explained to the committee that two years ago the request had been made to enforce this by-law and that at the time the promise had been received that it would be put in force very soon. However, there had been no move on the part of the civic authorities. Mayor Samson explained that the by-law suggested was ultra vires and that it would first be amended by the city attorneys to meet the requirements and that this would be done shortly.

WHERE PLUMBING COST COMES IN

Ottawa.—A letter recently appearing in a local paper was as follows:

Sir:—At the regular meeting of the Ottawa Master Plumbers' Association held recently a letter to the press signed by one J. S. Eagleson was read and discussed.

For the information of Mr. Eagleson and others who do not understand the situation with regard to the plumbing and heating business in Ottawa, we beg to submit the following cost of the plumber and his helper, which we feel assured is the enlightenment desired by Mr. Eagleson.

	Per hour
Plumber and his helper	$1.00
Tools and repairs	.05
Overhead expenses	.17
Bad debts	.06
Profit	.12
	$1.40

Ottawa Master Plumbers' Association

D. S. Burrows,
Secretary-treasurer.
Ottawa.

RECIPROCITY BETWEEN CITY AND COUNTY PLUMBERS

Todmorden, Ont.—"That the barrier be broken between township and city and vice-versa, as regards contractors and that free trade be permitted between the two," was the gist of a motion passed by Todmorden Ratepayers' Association.

President Amos Allpress referred to the recent report that township plumbers had been refused city work, wherefore he urged the meeting to make a decision. Discussion elicited that trouble between city and county plumbing contracts originated in the western section of York Township, that city plumbers worked in the township at a cheaper rate than resident workmen; that other contractors carried on outside the city limits; that the majority of local citizens were employed in Toronto.

In view of all these facts a sort of reciprocity was considered the best means of removing the reported trouble

RECOMMENDS THREE-INCH SOIL AND WASTE PIPE

Ottawa.—The Board of Control, particularly Mayor Plant, was somewhat taken back, when M. M. O'Connell, plumbing expert, presented his account for preparing for the city four sets of plans for plumbing installations and detailed costs of same. His bill was $825, representing Mr. O'Connell stated, about 300 hours work. Mr. O'Connell was retained by the city some time ago to present a report on the proposed new plumbing by-law. The Board was somewhat staggered at the size of his account for services.

In a letter to the Board Mr. O'Connell declared that the new by-law he had suggested drawn up, and which he has been authorized to undertake, would save the citizens of Ottawa from $40,000 to $60,000. To complete a new by-law and make all necessary detail sketches for plumbing installations, which he contended would reduce the cost of plumbing about 10 per cent., Mr. O' Connell said his price would be about $1,500.

Mr. O'Connell submitted letters to the Board containing praise for the three inch soil and waste pipe which he has recommended being adopted by the city. These letters were from J. Albert Ewart, architect, who found the three inch pipe absolutely satisfactory and from T. N. Bate and Gerald Bate, whose experiences with the three inch soil and waste pipe had also been most satisfactory.

PLUMBERS MUST PASS EXAMS.

Vancouver B. C.—After seven years of effort on the part of the employing plumbing interests of this city, the city council this week enacted a by-law making it compulsory for all master plumbers to pass an examination before a board of examiners before being granted a license to practise their business in the city.

PAY OTTAWA PLUMBERS 75 CENTS AN HOUR FOR CIVIC WORK

Ottawa Board of Control will recommend to city council a rate of 75 cents an hour for journeymen plumbers in all civic jobs. This decision was reached after an animated verbal clash between representatives of master plumbers and James Dalton, business agent for the plumbers' union.

Among the master plumbers present were W. G. Edge, W. H. Chapman and Mr. A. Gauthier.

Before the discussion started, Mayor Plant read a letter that he had received from Local 71, Steamfitters and Plumbers, which stated that they had no signed agreement with the master plumbers but that 75 cents to 80 cents an hour was the prevailing rate in Ottawa and they trusted that the Board of Control would take this into consideration in fixing the fair wage clause governing plumbers' wages on civic jobs. In the opinion of the board this was tantamount to admitting that 75 cents an hour was satisfactory to plumbers.

W. G. Edge, who was the chief spokesman for the master plumbers, declared that he had 15 plumbers in his employ and 13 of them were receiving 75 cents an hour and the others over that. It was customary for master plumbers to pay one or two good men slightly more than the others, and they were pleased to do it in order to keep good men.

Mr. Chapman said he was paying his two plumbers 75 cents. Mr. Dalton, for the plumbers, vigorously contended that the 80 cents an hour fixed by the city last year should be continued this year. He read out a lengthy list of names of master plumbers who were paying 75 to 80 cents an hour.

Mayor Plant finally stated that apparently there was nothing else to do but make the civic rate 75 cents, because Local 71 had agreed that it was fair.

Western Ontario News

Ratepayers at Wiarton, Ont., will shortly vote on a by-law to expend $10,000 in waterworks improvements.

David Greer, Gowanstown, Ont., wants prices on hot air heating, plumbing and electrical work for new $5,000 residence to be erected in Listowel.

George Mernier, New Hamburg, Ont., is preparing plans for new bungalow to cost $4,000 and wants prices on heating, plumbing and electrical equipment.

Plans are being prepared for $10,000 addition to the High school at Blyth, Ont. W. G. Murray, London, Ont., architect. Hot air heating, plumbing.

Charles West, London, Ont., has been awarded heating and plumbing for $7,000 duplex being erected by J. H. Plested.

Tenders for new buildings to cost $1,000,000 for the Western University, London, Ont., will be called about June 17. Prices wanted on steam heating.

The Wright Teale Co., London, Ont., has been awarded contract for plumbing and heating for new $12,000 bungalow for Israel Taylor.

James Adams, Listowel, Ont., is preparing plans for new $4,000 residence and wants prices on heating plumbing and electrical equipment.

Eggett & Co., London, Ont., have been awarded contract for heating and plumbing for $15,000 dye house being erected for the London Hosiery Mills, Limited.

William Skelly, 242 King St., London, Ont., has been awarded plumbing contract and installation of shower baths for new Highland Golf Club building.

W. J. Kilpatrick, 492 Grosvenor St., London, Ont., wants prices on hot air heating, plumbing and electrical work for two new residences to cost $8000.

H. Ankenman, Chesley, Ont., is preparing plans for new residence to cost $5,000 and wants prices on hot air heating, plumbing and electrical equipment.

Mrs. M. Pearson, 27 Belgrave Avenue, London, wants prices on hot air heating, plumbing and electrical work for new residence costing $6,500.

Joseph McCormick, Watford, Ont., wants prices on hot air heating, plumbing and electrical work for new $4,500 residence.

John Eggett of Eggett & Co., London, is making a good recovery after a recent operation in Victoria Hospital, for appendicitis.

Plans are being prepared for new residence to cost $20,000 for R. H. Dowler, 564 Colborne St., London. Prices wanted on hot water heating, plumbing and electrical work.

Thos. Janes, 111 High St., London, Ont., wants prices on hot air heating, plumbing and electrical work in connection with two new residences to cost $9,000.

Architect W. G. Murray, Dominion Savings Bldg., London, Ont., is preparing plans for new $60,000 church and gymnasium for the Baptist congregation at Leamington, Ont. Prices wanted on steam heating, plumbing, shower baths, lavatories and electrical work.

Tenders will be receeived until June 19 by W. G. Murray, Dominion Savings Building, London, for steam heating, plumbing, installation of shower baths, ventilating system and electric lighting, in connection with improvements to the High school at St. Marys, Ont., estimated cost $30,000.

W. G. Krug, Chesley, Ont., wants prices on hot air heating, plumbing and electrical work for new $5,500 residence.

Watt and Blackwell, Bank of Toronto, London, are preparing plans for new technical school at Owen Sound to cost $250,000. Steam heating, plumbing and electrical work. Prices wanted on all equipment and materials.

A PROBLEM IN WATER SUPPLY

(Continued from Page 14)

ground and spring outlets appear to be well above the level of the proposed basin so a gravity supply system to the basin can be installed and would advise laying a main collecting jointed pipe with manholes at the lowest level along the collecting ground to the basin and taking off branch unjointed pipes into same tapping all the spring outlets and water-bearing ground for the necessary water.

Carry out all the protection previously mentioned around all the open-jointed pipes so as to prevent the sand being sucked into the mains and blocking same up, also provide for accessibility to these pipes for cleaning out purposes and we cannot then see why you should not collect all the water available except in severe winter weather.

Size of Reservoir

100 families at 5 persons in each=500 population. 500 people at 50 gals per head=25,000 gals daily Fire protection, factory, and future increase should be provided for.

Not knowing local conditions and if the supply is available every day of the year the actual storage capacity cannot be determined, consequently the basin size cannot be given, but the correspondent can arrive at these and make the size of the basin large enough to take care of all these conditions from local observations, but in any event have ample supply always stored up to meet every contingency.

Construction

Construct basin in concrete to the required thickness to withstand the pressure of water, and at least 4 feet below ground level to prevent the action of the frost, same must be constructed watertight and covered over with concrete roof to prevent contamination and weather conditions if desired.

It would be an excellent idea to provide for metering the inlet and outlet pipes so that an accurate record can be obtained for future reference.

All mains should be well laid of sufficient size to meet the demands, watertight, and deep enough to be not affected by the frost.

Tests

Before using, and afterwards, samples of the water should be submitted to the Ontario Board of Health at Toronto to be tested and receive their approval, as pure drinking water is essential for the public safety, and a filtering system would have to be installed if necessary should they demand it.

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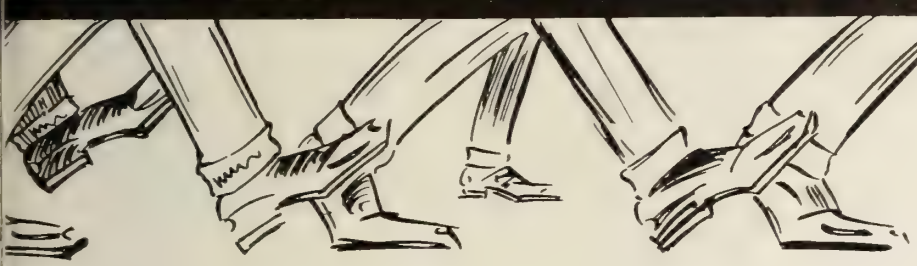

80% Leg Work

es—what is the secret of successful sell-fixtures?

—a knowledge of how every fixture you ork and increase health and comfort.

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why they should buy the things you have

ements are essential but in sales. Volume sales — and every Sanitary Engineer is possible of plumbing fixtures bund.

rs agree that selling, when hard facts, is chiefly com-

g. Company, Limited

TORONTO

Winnipeg Office :
405 TRIBUNE BLDG.

Montreal Office :
301 SOUTHAM BLDG.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

Markets at a Glance

AN EXTENSIVE budget of price developments, comprising a variety of both increases and declines, appears on the current heating and sanitary markets. Higher prices are recorded on radiators and boilers, copper sheets, bar iron and steel, galvanized sheets, black and blue annealed sheets, cement, copper scrap and also other grades of waste materials. Eastern markets record an advance in solder quotations. On the other hand, lower price levels are noted on boiler tubes, asbestos sheathing, and boiler covering. The increase on radiators and boilers to the extent of seven and one-half and ten per cent. respectively, has resulted through the withdrawal of the extra discounts recently quoted on these products. The revised downward price list on boiler tubes, both lapweld and seamless, reflects the current condition of this market. The slight advance in cement quotations is attributed to sales tax revisions. Recent reports show the general adoption of the new piece list on malleable pipe fittings. An upward movement in virgin metals offers a stronger tone in copper and brass products, as well as in compression goods. Corrugated sheets are now described as in a very firm position, while the strength in wrought piping is being maintained. Better trade is recorded in enameled ware products, with a more settled feeling and improved sales volume in bathroom fixtures and closet outfits. Range boiler trade is also stated to be generally more satisfactory. The cotton waste markets are on a firmer trend, due to the recent rise in raw cotton prices. While ingot metals were mainly on an improved basis during recent weeks, a slightly easier tone has now developed in certain cases, this being a natural reaction from the upward movement.

Montreal Markets

MONTREAL, June 13.—Various price developments are again recorded on the market for plumbing and steam-fitting supplies. Among the lines having advanced quotations are solders, galvanized sheets, bar iron and steel. The stronger tone of copper both in primary, virgin and scrap metal markets is now reflected locally on copper waste, both light and heavy being slightly increased in price. The raw cotton market is also much firmer, and cotton wastes, while unchanged, have developed a stronger tone. Revisions in a downward direction are given on certain asbestos products and boiler tubes. In both cases the undertone is reported as little changed but owing to keen competition the market is somewhat unsettled. Asbestos boiler covering and asbestos sheathing have new quotations, while boiler tube prices are still very nominal. The strength of the ingot markets has been particularly marked in tin, lead and spelter, although a slightly easier tone has crept into the markets during the past week.

COPPER SCRAP AGAIN INCREASED IN PRICE

Montreal.

The stronger tone of copper in both the virgin metal and scrap on primary markets is reflected locally, light and heavy copper scrap being advanced in price this week. The light metal is increased one-half cent per lb., and heavy copper is one-quarter cent higher. Lead also shows a slight increase in prices. Copper is undoubtedly the most active metal in the waste markets, consumption in the United States having increased appreciably in recent weeks. There is also the improvement in other lines, iron and steel scrap still advancing in outside markets, and dealers continue to view the future with much more optimism than they have been permitted for some time past. Hopes are based on export trade, the opening of foreign markets to a greater extent, accompanied by the improvement already in evidence placing the market on a firmer standing. Following are average quotations.

SCRAP—

Automobile Tires	0 50
Rubber Shoes	0 02¾
Yellow brass	0 06
Red brass	0 08¾
Light brass	0 04
Scrap zinc	0 03½
Lead, heavy	0 04¼
Lead, tea	0 02¼
Light copper	0 09
Heavy copper	0 11
Wrought iron, R. Rd., No. 1 per gr. ton.	10 00
Malleable scrap (ton)	9 00
Pipe scrap (ton)	6 50
Heavy melting steel	9 00 to 9 50
No. 2 busheling	3 00
Boiler plate	8 00
No. 1 machinery cast	21 00

SOLDER PRICES ADVANCED ONE CENT PER POUND

Montreal.

Quotations on the various grades of solders are advanced one cent per lb., the strength of metals on primary markets now reflecting on this product. Lead, tin, spelter and copper are reported a little easier but the strength of the past few weeks has resulted in increased quotations being announced on both domestic and outside markets. Although fluctuations have occurred in these metals during the past few months, the present trend is thought to be of a healthier nature. Current trade in the finished products continues fairly brisk, building activity requiring supplies of many lines. Following are prevailing quotations:

LEAD AND ZINC PRODUCTS—

Lead pipe, per 100 lbs.	12 00
Lead waste, per 100 lbs.	13 00
Note—Lead pipe is subject to a discount of [illegible]	
Lead traps and bends	17½% off.
Lead wool, lb.	0 13½
Lead sheets, 2½ lbs.	0 10
Lead sheets, 3 to 3½ lbs., sq. ft., lb.	0 09¾
D., 4 to 8 lbs., sq. ft.	0 09
Cut sheets, ¼c. lb. extra and cut sheets to size, ¾c. lb. extra.	
Solder, guaranteed, lb.	0 26½
Do., strictly, lb.	0 24½
Do., commercial, lb.	0 21½
Do., wiping, lb.	0 22½
Do., wire, lb.	0 35
Zinc, sheets, casks	0 11
Do., broken lots	0 11½

FIRM TONE IN BRASS AND COPPER GOODS

Montreal.

The stronger tendency in brass and copper goods, such as rods, sheets and tubing, becomes more apparent from week to week, but up to the

present no change has been made in local quotations. It will be noted that other domestic markets have announced an upward revision, but this change brings quotations on a more uniform basis where formerly there was a wide variation between the two centres. Copper in primary markets remains in a strong position, and is now reported as firm both in London and New York, with consumption on the increase. Unchanged local quotations are as follows:

BRASS—	Base.
Sheets, base	0 24
Rods, base ½ to 1 in., round	0 22
Tubing, seamless, base	0 30
F. o. b. Montreal.	
COPPER—	
Rods, ½ to 2 in.	0 29
Soft sheets, plain, 16 oz., and heavier	0 32
Plain tinned, 16 oz. and heavier	z0 36
Polished, and tinned, 16 oz. and heavier, lb.	0 41
Tubing, lb.	0 32
Above prices are full sheets and bars. Cut sheets and bars are 5c. per lb. higher.	

LOCAL CEMENT TRADE IS REPORTED GOOD

Montreal.

Local dealers in cement report an active demand, the call for this product becoming more extensive in recent weeks. Sales throughout the city are particularly heavy at the present time because of the active building program requiring supplies. For outside centres, the movement has been a little backward during the spring months, but compares favorably with last year. Quotations are unchanged at following levels:

CEMENT—Car load lots—	
Per bag, f.o.b. cars	0 92
Per bag, delvered	1 00
Less car lots—per bag, f.o.b. yard	1 00
Per bag, delivered	1 10
Less 5 per cent.	
Rebate of 20 cents for empty bags.	

RECESSION IN BOILER TUBE QUOTATIONS

Montreal.

The unsettled state of the boiler tube market is further evidenced by the announcement of lower prices on practically all sizes of seamless and lapweld tubes. With the undertone of the market little changed, a marked reduction is made, particularly in the larger sizes. Present quotations are purely nominal, and while the following levels are given for general business, it is stated that size and specifications of orders govern prices to a large extent, and fair-sized inquiries may receive a further concession. Only a moderate degree of activity is now in evidence, the larger tubes being particularly quiet, and with the spring season now over, dealers look for little improvement throughout the summer months at least. Following are nominal quotations:

BOILER TUBES—	Seamless	Lapweld
1 inch	18 00	.....
1¼ inch	20 00	.....
1½ inch	19 00	.....
1¾ inch	2000	.....
2 inch	19 00	16 00
2¼ inch	22 00	19 00
2½ inch	25 00	19 00
3 inch	29 00	24 00
3½ inch	34 00	26 80
4 inch	43 00	34 25

STRONGER TENDENCY STILL APPARENT IN CORRUGATED

Montreal.

The stiffening of prices of flat galvanized sheets continues to add strength to the undertone of corrugated, and dealers now state that the market is in a much improved position. There is now less room for price shading, this practice being more or less common, especially on the heavier gauges, during spring months. Although present stocks are said to be ample to take care of present requirements, the inability of southern mills to make prompt deliveries, and the active demand for sheets from overseas, is reflected on the corrugated market to an extent, and a continuation of the present ratio of business will greatly tax available supplies in the ensuing weeks unless an improvement becomes evident in the flat sheet supply. List prices and discount are as follows:

CORRUGATED SHEETS—	Per 100 sq. ft.
No. 28 gauge	6 50
No. 26 gauge	7 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50
Less 10 per cent.	
Lighter than 24 gauge and wider than 27 inches, 75c. a square extra.	

ACTIVE MOVEMENT IN TROUGH AND PIPE

Montreal

A brisk trade is now being enjoyed in eavestrough, conductor pipe, elbows, etc., and sales for the month of May are said to be quite satisfactory. The present month has opened well and dealers anticipate an active movement throughout the coming weeks. Owing to the stiffening of prices on galvanized sheets, these products are firmer in tone at the following list prices and discounts:

EAVESTROUGH—
in., $16.90; 10 in., $18.70; 12 in., $22.20; 15 in., $29.80; 18 in., $37.80.

O.G. Square bead, per 100 ft.: 8 in., $15.90; 10 in., $17.70; 12 in., $21.20; 15 in., $28.80; 6 in., $36.80.

Discount 70|10 per cent.

Conductor Pipe, Round. Plain and Corrugated, per 100 ft.: 2 in., $18.40; 3 in., $23.30; 4 in., $29.60; 5 in., $40.00; 6 in., $49.00.

Discount 70|10 per cent.

CONDUCTOR ELBOWS—
Plain or corrugated, price per doz.
2 in., $5.25; 3 in., $6.00; 4 in., $10.50; 5 in., $24.00; 6 in., $29.00.

Discount 60 per cent.

NO FURTHER CHANGE IN RADIATOR DISCOUNTS

Montreal.

Manufacturers of boilers state that present trade in water and steam heating systems is fairly active, the movement showing a marked improvement in recent weeks. Building under construction has in many instances now reached the stage where heating systems are required. In this regard, one manufacturer reports that material for numerous installations is being forwarded to buildings which are not yet ready for heating systems, and the recent announcement of reduced quotations has brought a considerable amount of this trade to hand. Bookings are also on the increase, doubtless being placed in an effort to get under cover at prevailing prices.

With this improvement in current trade, and the present firmer undertone in the market, as in other iron and steel products, a stronger undertone is evident in both radiators and boilers. The gradual elimination of price-shading, which is said to be now almost prohibitive at existing price levels, is also improving the situation on these products. Although revised discounts were originally effective until May 31, it is now stated that present quotations are indefinitely extended.

RADIATORS AND BOILERS—

Radiator list prices are for 1, 2, 3, 4 and 5,-column radiators per square foot.

45 in. to 38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in, $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $160 Discount 59 and 7½% for hot water and 60 and 7½% for steam.

Wall Radiators—5 ft., $1.25; 6 ft., $1.10; 7 ft., $1.05; 9 ft., $1.05; 12 ft. $1.05. Discount 56 7½%.

Boilers—Round hot water boilers, low base only (high base discontinued); sizes from 0 to 10, 64 10% off list.

Square or sectional hot water or steam boilers, 15-in., 20 and 10 per cent.

For Ontario Government trimmings add 5 per cent.

Square or sectional steam boilerfs, 19 in. to 36 in., 20 and 10 per cent.

Square or sectional water boilers, 19 in. to 36-in., 20 and 10 per cent. Ontario Govt. trimmings, 10 and 10 per cent. discount.

Round steam boilers, standard trimmings, 28 and 10 per cent. off. Ontario Government trimmings. 25 10 per cent.

All prices f.o.b. Toronto, Montreal, Guelph, Hamilton, St. Catharines or Brantford.

MALLEABLE FITTINGS QUOTED ON PIECE LIST

Montreal.

Local distributors of malleable fittings have now generally adopted the new price list with a discount of 70 and 5 per cent. This new method of pricing, although effective from June 1st, was not uniformly adopted until this week. Quotations are little affected, the present discounts bringing prices practically to former net figures per pound. Other lines of fittings remain at former discounts, with trade continuing in fair proportions. Present quotations are as follows:

PIPE FITTINGS—	Per Cent.
Cast iron fittings	30
Bushings, cast	32
Bushings, malleable	32
Flanges	40
Plugs	30
Flange unions	30
Malleable unions	47
Dart unions, black	33
Do., galvanized	13
Nipples, ⅛ to 4" close and short	60
Do., long	65
Do., 4½ to 8" close and short	50
Do., long	55
Couplings, 4" and under	30
Do., 4½" and larger	10
MALLEABLE FITTINGS—	
Piece list effective June 1st, 1922. Discount 70—5 per cent.	

FIRM TONE STILL IN WROUGHT IRON PIPE

Montreal

Wrought iron and steel pipe are still reported on a firmer trend, and although list No. 54 continues to cover quotations, the present position of the market lends a strong outlook for the future. Improved demand at this season, coupled with recent gains made in the steel industry generally, has a strengthening effect, and although the recent tariff change, announced in the government budget, tends to ease the market, domestic mills seem satisfied

that this will have little or no immediate effect. Markets to the south have recently recorded an upward trend, and with home demand on the increase, little competition is expected from this source for some time at least.

SEASONAL ACTIVITY IN SOIL PIPE AND FITTINGS

Montreal

Notwithstanding the revision in discounts last month, when both soil pipe and fittings were brought to higher price levels, a fairly brisk demand in these products, building operations stimulating sales, especially in recent weeks. Dealers' stocks have, for some time, been at a comparatively low level, and a more active consuming demand would not allow a curtailment of buying, which would naturally result through higher market values. This steadier buying movement, assisted by a firmer undertone in raw materials, is said to be maintaining a stronger tendency in the market than has existed for some months past. Following are prevailing discounts:

SOIL PIPE—	
2 and 3 inch	40%
4 inch	45%
5 and 6 inch	40%
8 inch	20%
Fittings—	
2 to 6 inch	50%
8 inch	20%

PRICE REDUCTION IN ASBESTOS PRODUCTS

Montreal.

A further reduction in prices is announced on asbestos pipe covering and sheathing. The former is now quoted at $1.50 per bag, a reduction of 40 cents, and sheathing is now quoted at $7.50 per 100 lbs. This is the second revison on these lines in recent weeks. Dealers state that keen competition is now playing an important part in these products, and although the undertone of the market is quite steady, price concessions are offered for attractive inquiries, size and specification of orders governing quotations to a great extent. Following are nominal prices:

ASBESTOS PRODUCTS—	Off list prices
2 ply pipe covering	67½%
3 ply pipe covering	65%
4 ply pipe covering	60%
85% magnesia	45%
	Per bag
Boiler covering	1 50
	Per 100 lbs.
Asbestos sheathing	7 50

IRON AND STEEL STILL ON A FIRM TREND

Montreal.

The increased sales tax is now reflected on the local iron and steel market when prices on practically all lines are advanced five cents per 100 pounds. This revision is not yet advanced by all distributors, but it is expected that it will be generally adopted within the very near future. The recent variation among jobbing houses is much improved and present price levels are from $2.90 to $2.95, the advance of 15 cents being made where formely $2.75 was quoted. Conditions in the steel trade remain on a fairly firm basis and the market is described as stronger, notwithstanding recent price advances both on domestic and southern markets. The improvement in local trade is gradual, but with a more uniform price level among dstributors, and a healthier tone continuing in the market, a further betterment is looked for. Following are revised quotations:

IRON & STEEL—	
Common bar iron, 100 lbs.	2 95
Refined iron	4 45
Iron finished machinery steel	3 00
Mild steel	2 95
Single reeled machinery steel	5 05
Band steel	3 30
Spring steel	4 55
Sleighshoe steel	2 95
Tire steel	3 15
Toe calk steel	3 85
Harrow tooth steel	3 10
Mining tooth steel, per lb.	0 20½
Black Diamond tool and cast steel	0 20½

NOTE—Refined iron is approximately $1.50 per 100 lbs. over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs. extra.

EXPECT IMPROVED TRADE IN COMPRESSION GOODS

Montreal.

Slightly increased trade, and a stronger tone in copper and other raw materials offer a little firmer tone in the market for compression goods. According to one local dsitributor, trade up to the present has shown only a gradual improvement, but owing to the building program throughout the summer months a brighter outlook is now promised, the commencement of this trade only now being felt. Stocks in all quarters are at a low level, and with a healthier condition to prevail, the improvement is expected to be general. Quotations are unchanged at following discounts:

Compression work, standard	45%
Fuller work, standard	30%
Quick opening compression bibbs	43%
Bath cocks, quick opening	41%
Bath cocks, compression	41%
Basin cocks, quick opening	46%
Flatway stop and waste cocks, standard	54%
Roundway stop and waste cocks, st'nd'rd	46%
Brass steam cocks, standard, ¼ in.	50%
Do., 2½ in. to 3 in.	43%
Radiator valves, standard	58%
Do., removable discs	58%
Globe, angle and check valves, standard	25%
Gate or straightway	25%
Emco globe valves	33%
Emco check valves	33%
Jenkins globe, angle, check and swing check	19%
Jenkins gate or straightway	25%
Jenkins iron body, globe and angle	15%
Jenkins iron body, gate	33%
N.P. "P" and "S" traps	40%

GALVANIZED SHEET PRICES ARE ADVANCED

Montreal.

With the firm tone continuing in the sheet markets, local quotations on galvanized sheets now show an advance of twenty-five cents per 100 lbs. on all gauges. In recent weeks there has been a series of price increases among the various distributors, but it is only this week that this development has been generally noted. Low stocks are still an important factor in the local situation, many warehouses now reporting very little available supply on hand, with some of the best selling sizes now depleted. Another feature is the practical withdrawal of American sheet quotations. Owing to the non-arrival of U. S. standard to this centre recently, firms who have sheets for sale are quoting on overseas brands.

The tin plate market is described as fairly firm, with a moderate demand now in evidence. With the approach of summer months, a more active trade is expected for fall requirements, also in Canada plate. Following are revised quotations:

BLACK SHEETS—	
10 gauge	4 00 4 50
12 gauge	4 10 4 60
14 gauge	4 40 4 70
16 gauge	4 50 4 80
18-20 gauge	4 55 5 05
26-gauge	4 60 5 20
22-24 gauge	4 65 5 25
28 gauge	4 75 5 35

English Standard—			Queen's Head.	Fleur-de-lis
28 gauge	6 75	7 25	6 50	7 00
26 gauge	6 50	7 00	6 25	6 75
24 gauge	5 90	6 40	5 85	6 35
22 gauge	5 55	6 05	5 40	5 90
18-20 gauge	4 85	5 35	5 25	5 75

NOTE—These prices are for full bundles. An extra charge of 25c to 35c per 100 lbs. is made for broken lots. Extra for sheets 4 ft. wide, 50 cents per 100 pounds. Extra for sheets 8 ft. wide, 28 ga. and 10¾ oz. 25 cents per 100 lbs.

CANADA PLATES—	
Dull.	
18 x 24 x 52s	5 40
18 x 24 x 60s	5 50
18 x 24 x 75s	5 65
WELSH CANADA PLATES	
Polished	
18 x 24 x 52s	7 00
18 x 24 x 60s	7 25
TIN PLATES, COKE—	
28 x 28 x 100 lbs., bases	13 00
20 x 28 IC, 112s	13 50
20 x 28 IX, 112s	15 50
20 x 28 IXX, 56s	9 00
20 x 28 IXXX, 56s	9 75
TERNE PLATES—	
20 x 28 IC, 112s	14 50

LITTLE BETTER FEELING IN ENAMELED WARE

Montreal.

Business in enameled ware products continues in fair seasonal proportions, with little or no change in the market generally. Quotations are unchanged at one-third off, and with the increased volume of business during the past month, there is said to be a somewhat better feeling among local distributors and prices are steadier than they were during the quiet winter months. Following are unchanged list prices and discounts:

ENAMELED WARE—			
Sinks, roll rim—			
18 x 30			$23 00
Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$ 7 50	$ 7 40	$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70
Bath tubs, rol rim, 4 4½, 5 feet, 24 to 30 in. wide			57
Bath tubs, 5½ feet			57 10
Lavatories—			
17x19 in. Apron F139 or P4045			15 30
18x24 in. Apron F154 or P3845 or P3847			23 60
18x21 in. Apron F169 or P4205			17 60
17x19 in. Roll rim. F241 or P4345			12 60

Less 33 1-3 per cent.

COTTON MARKETS ON A FIRMER TREND

Montreal.

Following a period of fluctuations the cotton market in primary centres is now reported as firmer. This stronger tendency has reflected on certain finished products, but up to the present no change is made in cotton wastes on the local market. Sales of this product are now fairly brisk and show an appreciable increase over this period last year. Following are unchanged local quotations:

COTTON WASTE—Cream polishing, 18c. per lb. White—XXX extra, 16c.; XX grand, 15c. XLCR, 14c.; X Empire, 13c.; X press, 11½c.

Colored—Fancy, 13½c; Lion, 12c; Popular, 9c; Keen, 7½c.

Wool Packing—Arrow, 24c.; Axle, 20c.; Anvil, 16c.

Dominion Wipers—White cotton, 20c; colored cotton, 14c.

Ever Hunt Deer?

Probably you found them by their fixed habit of returning to the same place for water at every dawn and dusk, day after day. That's a pretty natural way of finding deer, by going where deer are sure to be.

Twice a month, practically everybody in Canada that is interested in the plumbing and heating trade, goes to Sanitary Engineer in search of the business items, markets and advertising where they find the latest news and newest goods offered in the Canadian plumbing market.

There, twice a month, you can find and reach practically the whole plumbing and heating trade of Canada. It's a good time and place to tell them about your house and product. A full page weekly costs slightly over half a cent for each subscriber reached!

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Sanitary Engineer

Plumber and Steamfitter of Canada

143-153 University Avenue,

TORONTO, Canada.

SEASONAL DEMAND FOR CLOSET COMBINATIONS

Montreal.

With current quotations brought to a lower level on closet combinations and other lines, through the revision of last month, the situation on these products is described as a little firmer. This price change, accompanied by a better demand at this season, also allows distributors to view the future with a little more optimism, and building activities during the summer months are expected to furnish a fair demand for these products well into the fall. Current price levels are as follows:

CLOSET COMBINATIONS—	each
Closet, standard low down outfit	$25 00
Do., post hinge seat	26 00
Do., oak vitro, back strip seat	27 75
Do., oak vitro, post hinge seat	28 40
Do., china tank and back strip seat	28 50
Do., china tank post hinge seat	29 50
Do., vitro white with post hinge seat	30 75
Reversible trap bowl, less spud	11 25
Wash down bowl, less spud	10 00
Richelieu bowl	9 00
Siphon jet bowl	16 25
Extra for spud	0 60
Add for ⅜ in. valve on supply pipe	1 25
Add for bar hinge	No extra
Deduct for supply pipe	0 80
Deduct for floor hinge	0 60
Wood strip seat and cover	3 05
Post hinge seat and cover	4 25
Oak or oak vitro tank, with fittings, less seat	14 25
White vitro, vitreous china or enameled iron tank, with fittings, flush elbow and supplies, less seat	18 50

MODERATE PROSPECTS IN RANGE BOILERS

Montreal.

Manufacturers and distributors of range boilers describe present trade as fairly good, the requirements of home building construction stimulating sales in the past two weeks. Business apparent in these products during the spring months has been more or less spasmodic, but on the whole sales have reached favorable proportions with fair prospects for continued activity during the summer. There is no change in quotations, and while net prices and list with discount is still being quoted, $8.75 is most generally quoted on the 30 gallon standard boiler. Following are list prices and discount:

RANGE BOILERS:—	
5 Gallon	$13.50
12 "	14.00
18 "	15.00
25 "	16.00
30 "	17.50
35 "	20.50
40 "	22.75
52 "	38.00
66 "	60.75
82 "	74.00
100 "	103.00
120 "	117.00
144 "	164.00
168 "	187.00
192 "	210.00

Discounts, Standard weight, 50 per cent.
Extra Heavy, 40 per cent.

SLIGHTLY EASIER TONE IN SOME METALS

Montreal.

Metal markets have maintained a fairly firm tone although there are now signs that recent advances are drawing to a close, with a slightly easier trend in certain lines. Possibly this may not extend very far, but it is only considered natural that some re-action should take place after the steady advance of the past month.

TIN.—The London market has been a little easier this week with a decline to the £150 mark, and with exchange also lower the New York market has declined in sympathy. This is not surprising in view of ample stocks available and moderate consumption, especially on the continent. An irregular market is expected for a time but with little change in prices. Locally the market is easier at 35½ cents.

COPPER.—London has been easier in tone possibly owing to the failure of the International loan to Germany which it was thought would increase exports from this side. The situation in the U. S. A. is said to be quite satisfactory and domestic demand is better than export at the moment. At the same time lower prices would not be surprising. The local market is unchanged at 17½ cents for electro and 17¼ cents for casting.

SPELTER.—Demand for this metal continues good and there is as yet no sign of any weakness in price. The higher prices naturally tend to increase production, but the coal strike is an important factor both with regard to production and consumption. The London market remains firm with supplies none too plentiful. Quotation is unchanged at 8 cents.

LEAD.—London at last shows a downward trend, although it is impossible to state how far this will go. This is hardly unexpected in face of a heavy premium for spot metal. The situation in the U. S. would appear to be quite sound, and at the present time there is no apparent cessation in demand with no foreign lead available to steady the market. Local price is a little easier at 6¾ cents.

ANTIMONY.—This metal is slightly firmer in New York but supplies are still plentiful, and little change in prices is expected. Chinese is quoted at 6¾ cents, and high-grade English at 7½ cents.

ALUMINUM.—Aluminum remains dull on the local market with quotation unchanged at 24 cents.

Toronto Markets

TORONTO, June 13.—Numerous advances and reductions are recorded in current prices on plumbing and steam-fitting materials. Higher quotations appear on radiators and boilers through the removal of the extra discounts recently quoted. Copper sheets, black and blue annealed sheets also record an advance, while galvanized sheets show a further price increase. Bar iron and steel, cement, and certain grades of scrap materials have also developed a rise in cost. On the other hand, lower quotations are noted on boiler tubes, both lapweld and seamless being revised to a new basis, this change reflecting the weaker condition of these markets. A drop in prices on asbestos sheathing and boiler covering is attributed to keen competition. The new piece list on malleable pipe fittings has now been generally adopted. A recent price advance in raw cotton markets has reflected a firmer trend in wastes. Fair volume of sales is recorded in bathroom fixtures, with better trade in enameled ware products.

PRICES ON RADIATORS AND BOILERS INCREASED

Toronto

As outlined in recent issues of Sanitary Engineer, a further revision has been announced in the discount levels on radiators and boilers. Quotations on these products are increased respectively 7½ and 10 per cent., through the decision that, effective from June 12, the additional discounts which were previously being quoted are withdrawn, and prices now revert to the previous levels which were in effect during the Spring months. Manufacturers and distributors of boilers and radiators state that so much business was booked up at the lower prices, that the outlook has distinctly improved, with the rising trend in the steel industry generally being reflected in practically all steel products. The market in these products is described as firm at the following revised quotations:

RADIATORS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60.

Discount on 2, 3, 4 and 5 column standard sizes, 59% for water and 60% for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 51% for water and 52% for steam.

Discounts on 1-column hospital size, water 33%; steam 34%.

Wall radiators—5 ft. $1.15; 6 ft. $1.10; 7 ft. $1.05; 9 ft. $1.05; 12 ft., $1.05. Discount 56%.

BOILERS—

Water:

Round 64% off list. Square 15%. off list.

Steam:

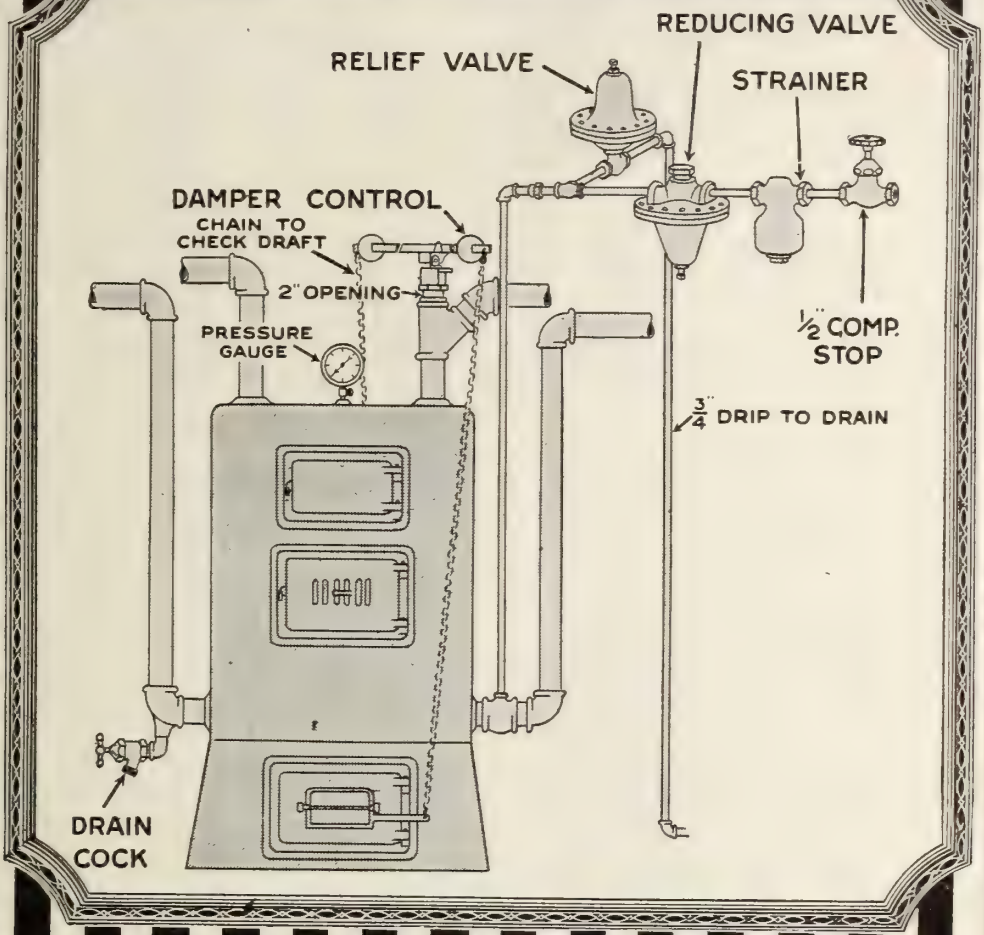
Round 28% off list; Square 15%. off list.

COPPER SHEET PRICES INCREASED ONE CENT

Toronto

Copper sheets have now been advanced in price to the extent of one cent per lb., a development which was outlined in a previous market report in Sanitary Engineer. This change reflects the firm tone apparent in copper products generally, a condition primarily attributed to the strength of the virgin metal during recent weeks. Other copper and

(Continued on Page 30)



Mueller Automatic Hot Water Heating System

The *MUELLER* Automatic System of Hot Water Heating, consisting of a *MUELLER* Water Reducing Valve, Relief Valve, Water Strainer, etc., combined with a Damper Control has met an urgent demand for a pressure system, free from danger. It is compact, easily installed, dependable in operation and makes the simplest, most effective and satisfactory system on the market today.

The "Mueller System" has these important advantages: (1) Quickly installed on either new or old systems; (2) Water always fresh; (3) Rapid circulation; (4) Entirely automatic; (5) Requires less fuel; (6) No expansion tank; (7) Perfectly safe; (8) Absolutely dependable.

Write for special booklet on this subject. Prices on request.

H. MUELLER MFG. CO., LIMITED, SARNIA, ONT.

Water, Plumbing and Gas Brass Goods and Tools.

American Factory at Decatur, Ill., U. S. A. Branches, New York and San Francisco

Mueller Metals Co., Pt. Huron, Mich., Makers of "Red Tip" Brass Rod; Brass and Copper Tubing; Forgings and Castings in Brass, Bronze and Aluminum; Die Castings in White Metal and Aluminum; also Screw Machined Products.

TORONTO MARKETS
(Continued from page 27)

brass goods such as rods and tubing remain at the upward revisions of two weks ago. Following are prevailing quotations:

BRASS—	
Sheets, base, per lb.	0 22
Rods, base, per lb.	0 19
Tubing, base, per lb.	0 25
COPPER—	
Rods, base, per lb.	0 28
Soft sheets, plain, 1 oz. and heavier, lb.	0 29
Do., plain tinned, 16 oz. and heavier, per lb.	0 36
Do., polished, and tinned, 16 oz. and heavier, lb.	0 41
Tubing	0 29

REVISED PRICE LIST ON BOILER TUBES

Toronto

As outlined in previous issues of Sanitary Engineer in reports covering the boiler tube market, the general inclination to shade prices in order to secure any order that may be going, is still prevalent among local distributors. This tendency has resulted in further lowering the nominal list prices on these products, the new quotations being approximately five per cent. lower on lapweld, and of varying extent according to the different sizes on seamless tubing. Current conditions are described as quiet, with the following list being the revised local prices for fairly large quantities:

BOILER TUBES—	Seamless	Lapweld
1 inch	18 00	.....
1-¼ inch	20 00	.....
1-½ inch	19 00	.....
1-¾ inch	20 00	.....
2 inch	19 00	16 00
2-¼ inch	22 00	19 00
2-½ inch	25 00	19 00
3 inch	29 00	24 00
3-½ inch	34 00	26 80
4 inch	43 00	34 25

ANOTHER INCREASE IN QUOTATIONS ON SHEETS

Toronto.

As pointed out in recent market reports contained in Sanitary Engineer, the firm trend in sheet circles generally, indicated higher price levels in the near future. This change has now developed, local quotations being generally advanced forty cents per 100 lbs.

The current demand for galvanized sheets is well illustrated by the fact that producers are taking orders for six weeks delivery, and some commitments are reported for even later dates. Prices are exceptionally firm. While there continues to be apparent a brisk demand for steel items, the opinion is expressed that production by the mills is well ahead of actual consumption, although buyers are booking ahead and the ratio of output is increasing. Manufacturing consumers and other interests are gradually replenishing stocks. This condition in general has resulted in the steel market as a whole having gained sufficient momentum to carry it through the proverbial dull summer season with relatively improved prospects. Revised sheet quotations follow:

[illegible] base	4 00
[illegible]	4 65
14 gauge	4 10
16 gauge	4 15
BLACK—	
18-20 gauge	4 60
22-24 gauge	4 65
26 gauge	4 70
28 gauge	4 80

Charge of 25c. per 100 lbs., is made for less than case lots. An extra 10c per 100 lbs. is also charged on sheets 26 in. wide.

GALVANIZED—	Queen's Head.	Fleur-de-lis.
28 gauge	7 25	7 00
26 gauge	7 00	6 75
24 gauge	6 40	6 35
22 gauge	6 05	5 90
18 and 20 gauge	5 85	5 75
Premier and Apollo—		
10 10¾ oz.		6 40
U. S. 28, base		6 00
U. S. 26		5 70
22 and 24		5 55
18 and 20		5 40
16		5 25
12 and 14		5 10

An extra is now charged on galvanized sheets, 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20 cents per 100 pounds. Other gauges show no change for different widths.

An extra 40 cents per 100 lbs., is charged for Keystone and Premier brands copper-bearing sheets.

TWELVE PER CENT. DROP IN ASBESTOS PAPER

Toronto.

A reduction has been recorded in prices on asbestos paper, the quotation on this product now being revised to $6.75 per 100 lbs., whereas the former level was $7.70. This change amounts to a decline of approximately twelve per cent. Boiler covering has also been reduced to $1.50 per bag.

ASBESTOS PRODUCTS—	
Pipe Covering—	
Air cell, 4ply	60 per cent. off list.
Air cell, 3 ply	65 per cent. off list.
Air cell, 2 ply	67* per cent. off standard list.
Boiler Covering	$1.50 per bag.
Asbestos Sheathing	$6.75 per 100 lbs.

SLIGHT ADVANCE IN CEMENT QUOTATIONS

Toronto

Slight advances have been recorded in the local quotations on cement, this development being generally attributed to the increased sales tax. Cement in carload lots has been increased five cents per barrel: while in less than carload lots the advance is ten cents per barrel. Following are revised quotations:

CEMENT—	Toronto.
Car load lots.	
Per barrel, delivered	$3.75
Less car lots.	
Per barrel, f.o.b. yard	4 40
Per barrel, delivered	4 60

Single bags, $1.15 each; 4 bags to barrel.
Extra charge of $1.50 per load on less than 24 bag lots.
Rebate of 20 cents for empty sacks.

HIGHER PRICES QUOTED ON BAR PRODUCTS

Montreal.

Bar iron and bar steel quotations are now advanced twenty-five cents per 100 lbs. on the local market, this change having been more or less anticipated during recent weeks, owing to the firm trend in the steel industry generally. The new prices are almost uniform on small purchases, although it is admitted that large buyers can shade this level by a few cents, a quotation of $2.90 being reported in certain quarters. However, the higher prices are generally expected to become uniform in the near future, for if the customary spread between mill and jobber' quotations was being put into effect at present, a further advance would likely be in order. It is pointed out that other eastern market centres increased their prices a couple of weeks ago, the local distributors failing to immediately follow suit, but intimating that similar change would soon be forthcoming. This situation has now developed, and the revised levels are given below:

IRON AND STEEL—	
Mild steel bars, base	3 00
Mild steel bands, 3 16 in. base	3 50
Bar iron base	3 00
Angle iron, base	3 10
Horseshoe iron	3 75
Tire steel	3 25
Spring steel	6 00
Crucible cast sheet steel	28.00
Toe caulk iron	4 00
Hoop steel	4 00
Norway iron	12 50
Sleigh shoe steel	3 00
Mining Drill steel	18.50
Cast tool steel, high grade	30 00
Do., do., Medium	18.00

HIGHER PRICES AND FIRM TONE IN SCRAP

Toronto.

In sympathy with primary scrap markets, copper scrap is being held strongly by dealers and producers alike and advanced price levels are noticeable. All grades with the single exception of heavy yellow, are advancing and dealers with any accumulation are now holding for higher prices. The white metal division has not shown any change worthy of note.

Cast iron is still advancing, in sympathy with the pig iron movement, and it is difficult to surmise where this movement will lead. Heavy melting steel also is strong, and there has been an advance in price. Borings and turnings are being freely exported.

Rubber scrap, however, still remains in precisely the same condition, with practically no business being done. Following are the local average quotations for fairly large quantities:

SCRAP MATERIALS—		
Scrap Iron		
Gross Tons—		
Heavy melting steel (Hamilton)	$13 00	$14 00
Borings and turnings	6 00	7 00
Rerolling rails	12 00	13 00
Scrap pipe	5 00	6 00
No. 1 railroad wrought	10 25	11 25
Steel turnings (Hamilton)	9 75	10 25
Agricultural malleable	12 00	13 00
Railroad malleable	13 00	14 00
Net tons—		
No. 1 cast	18 00	19 00
Stove plate	15 00	16 00
Grate bars	14 00	15 00
Standard car wheels	15 00	16 00
Scrap Metals		
Heavy copper and wire	10 75	11 75
Light copper	9 25	9 75
No. 1 composition	9 00	9 50
No. 1 comp. turnings	7 50	7 75
Light brass	3 50	4 50
Heavy yellow brass	5 50	6 50
Heavy lead	5 00	5 50
Tea lead	2 75	3 50
Scrap zinc	4 50	4 75
Scrap Rubber.		
Boots and shoes	2 25	2 50
Lumbermen's rubber boots	1 50	1 75
Auto tires	0 50	0 60
Solid tires	0 75	1 25

NEW PIECE LIST ON MALLEABLE FITTINGS

Toronto.

As outlined in a previous issue, malleable fittings are now quoted at the new

(Continued on page 32)

When you see the Trade Mark

I. M.

on Pipe Fittings you know they are Reliable

Right choosing of Pipe Fittings is an important item in connection with your plumbing work; you certainly want those that are reliable, made with iron of high tensile strength and correct in every way.

Well you can get your wants supplied by us.

Our malleable fittings are made of Air Furnace Refined Iron, reamed and tapped to gauge, with perfect threads. We can supply both screwed and flange fittings, either black or galvanized.

We are equipped to make the general run of malleable and grey iron castings for machinery manufacturers, agricultural implements, automobiles and specialties.

We take pride in the quality of service these I. M. Pipe Fittings give.

International Malleable Iron Company, Limited.
Guelph, Ont.

Representatives:

VANCOUVER, B.C.—Messrs. Ames Bros., 325 Howe St.
WINNIPEG, MAN.—Messrs. Harry F. Moulden & Son, Confederation Life Bldg.
ST. JOHN, N.B.—Messrs. H. G. Rogers, Limited, 147 Prince William St.
HALIFAX, N.S.—Mr. Geo. D. Hatfield, Bedford Chambers.

TORONTO MARKETS

(Continued from page 30)

piece list with discounts, instead of at the pound list as formerly. The revised quotations are effective from June 1, and the discount is seventy-five per cent., as forecast in Sanitary Engineer, when the announcement regarding this change was first made. The movement of these products is now stated to be on a more satisfactory volume, such activity being attributed to the current requirements in construction circles. Following are a few of the new prices, showing how [illegible]

MALLEABLE FITTING LIST—

	Black	Galv.
1 in. elbow	0 32	0 53
2 in. elbow	1 05	1 70
1 in. tee	0 43	0 70
2 in. tee	1 45	2 40
1 in. coupling	0 33	0 53
1 in. locknut	0 15	0 23

This shows the new style of pricing.

PIPE FITTINGS— Per cent.

Cast iron fittings	30
Plugs, cast iron	30
Oo., solid	30
Do., countersink	30
Bushings, malle.	32
Do., cast	32
Unions, ¼ in. to 2 in.	47
Do., ⅜ in., 2¼ to 4 in.	47
Flanged unions, std.	30
Flanged fittings	30
Dart unions, blk., ¼ to 2 in.	33⅓
Do., ⅛ in., 2¼ to 4 in.	23
Do., galvd., add to black	30
Nipples, blk., and galvd. ⅛ to 4 in. close and short	60
Do., 4½ in. and larger	50
Do., long, ⅛ in. to 4 in.	65
Do., 4½ in. and larger	55
Do., running thread	40
Couplings, 4 in. and under	30
Do., 4½ in. and larger	10

MALLEABLE FITTINGS—

New piece list, effective June 1, 1922. Discounts 70 and 5 per cent.

RISE IN COTTON PRICES REFLECTED WASTES

Toronto

While current price levels on cotton wastes at present remain unchanged, yet these markets reflect the recent rise in raw cotton prices. As a result of raw cotton advancing more or less suddenly in southern quarters, local manufacturers and distributors of waste report that a much stronger tone now prevails. However, the present demand for waste is not considered of sufficient volume to carry higher prices, and prevailing unchanged prices follow:

COTTON WASTES—

Cream, polishing	0 18
White, XXX	0 18
XX	0 16
X	0 15
XC	0 14
XXX, extra	0 16
XX, grand	0 15
XLCR	0 14
X, Empire	0 13
X press	0 11½
Colored, No. 1	0 13
No. 2	0 12
No. 1A	0 11
No. 1B	0 10
Fancy	0 13½
Linen	0 12
Stockinet	0 10½
Popular	0 09
Keen	0 07½

Above lines subject to trade discount for quantities.

FAIR SALES VOLUME IN BATHROOM FIXTURES

Toronto.

The number of new dwelling houses being erected has created quite a demand for bathroom fixtures and local dealers' sales as a consequence are described as more satisfactory. There have been no price changes recently recorded in these products.

LEAD PRICES FIRMER ON PRIMARY MOVEMENT

Toronto

Lead product prices are now described as strong, in view of the recent developments in the primary metal centres, where higher quotations on ingot lead have been recorded. While the general tone has fluctuated slightly during recent weeks, the movement has been gradually upward, this improved position being attributed to increasing demand and greater consumer interest. Domestic distributors report that lead products are holding their own, and while the degree of improvement may not continue indefinitely, yet the current result is found in the strength of prevailing prices. No further price revision has been announced during recent weeks, the following quotations representing the average local level:

LEAD AND ZINC GOODS—

Lead pipe, list, per lb.	0 12
Lead, waste pipe, list, per lb.	0 13
Do., over 8 in., list, per lb.	0 14
Lead pipe is subject to a discount of 10 per cent.	
Lead traps and bends less, 17½ per cent.	
Lead sheets, 4 to 6lbs., sq. ft. in rolls, lb. 0.09	
Cut sheets, ½c to ¾c lb. extra and cut sheets to size, 1c lb. extra.	
Solder wire, per lb.	0 30
Do., commercial, lb.	0 22½
Do., strictly, lb.	0 21
Do., guaranteed, lb.	0 24
Do., wiping, lb.	0 21
Zinc sheets, per lb. 0 09	0 10

RECORD BETTER TRADE IN ENAMELED WARE

Toronto.

While no price developments have been recorded in the markets for enameled ware products, yet attention is drawn to these goods in view of the fact that distributors state that seasonal activity is evident at present, this degree of improvement being attributed to construction requirements on a larger scale, which are generally looked for at this season of the year. Following are prevailing quotations:

ENAMELED WARE—

Enameled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.	51 40
Do., 5½ ft.	57 10
Lavatories—	
17x10" Apron F139 or P4045	15 30
18x24" Apron F154 or P3845 or P3847	23 60
18x21" Apron F169 or P4205	17 60
18x21" Roll Rim, F197, F199 or P4655-6	15 40
17x19" Roll Rim, F241 or P4345	12 60
Sinks, Roll Rim, 16x24 in.	18 10
Do., 18 x 30 in.	23 00
Do., 20 x 30 in.	24 70

Sinks, Flat Rim—	3 only	2 only	1 only
16x24	$7 60	$7 70	$7 80
18x30	8 50	8 60	8 70
20x30	9 70	9 80	9 90

Above prices, list, less 33 1-3 per cent.

All steel enamel baths, 4 and 4½ ft.	$14 00
Do., 5 ft.	15 00
Do. 5½ ft.	16 75

These quotations are net.

MORE SETTLED FEELING IN CLOSET MARKETS

Toronto.

Current trade in closet outfits is reported as registering a fair degree of activity, the requirements of building circles now being experienced to a greater degree than formerly. Homes and other buildings under construction have now reached the stage where products of this class are required, and since the recent revision in quotations, a more settled feeling is reported in these markets generally. Current prices remain unchanged at the following levels:

CLOSET COMBINATIONS, low down	each
Closet, standard outfit, oak	26 00
Do., with post hinge seat	26 50
Do., mahogany Vitro or Pussyfoot with mahogany post hinge seat and cover	28 75
Do., vitreous china, with oak post hinge seat and cover	28 75
Do., vitreous china, with mahogany post hinge seat and cover	29 00
Do., white Vitro or Pussyfoot, with oak post hinge seat and cover	28 75
Do., white Vitro or Pussyfoot with mahogany post hinge, seat and cover	29 00
Do., enamelled iron tank with oak post hinge seat and cover	28 75
Do., enamelled iron tank with mahogany post hinge seat and cover	29 00
Additions or reductions to above	
Add for reverse trap bowl	0 75
Add for syphon jet bowl	7 00
For ⅜ in. valve on supply pipe	1 50
Deduct for supply pipe	0 70
Deduct for floor flange and bolts	0 60
CLOSET BOWLS—	
Washdown bowl less spud	10 00
Reverse trap bowl, less spud	12 10
Syphon jet bowl, less spud	17 00
"Richelieu" bowl	10 50
CLOSET TANKS, low down or Pussyfoot tank, with fittings, less seat	13 10
White Vitro or Pussyfoot tank with fittings, flush elbow and supply	15 65
Vitreous china tank with fittings, flush elbow and supply	18 00
Enamelled iron tank with fittings, flush elbow and supply	18 00
CLOSET SEATS—	
Oak post hinge seat and cover	4 15
Oak wood strip seat and cover	3 5[illegible]
Mahogany finish post hinge seat and cover	4 35

CORRUGATED SHEETS IN STRONG POSITION

Toronto

The recent higher prices on flat galvanized sheets have continued to add further strength to the corrugated market, and distributors now report that some revision in corrugated sheet quotations in the near future would not be surprising. One dealer expressed the opinion that the removal of the present ten per cent. discount would reflect the upward tendency in these products, which are experiencing a brisk call at present especially for lighter gauges, due to the apparent activity in building circles. Present stocks are in fairly good shape, although the increased demand coupled with the slow deliveries from the mills, are factors which may tend to tax available supplies during the ensuing weeks. Following are present unchanged quotations:

CORRUGATED SHEETS—	Per 100 Sq. Ft.
No. 28 gauge	$6 50
No. 26 gauge	7 00
No. 26, U. S. gauge	8 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50

Less 10 per cent.

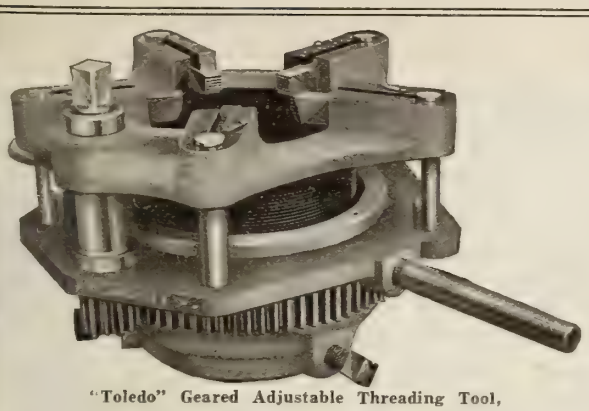
Lighter than 24 gauge and wider than 27 inches, 75c. per square extra.

MAINTAIN RECENT LEVELS ON COMPRESSION GOODS

Toronto.

Little variation has been recorded on brass compression goods since the recently revised discounts on certain lines

(Continued on page 34)



"Toledo" Geared Adjustable Threading Tool, No. 2½. Capacity 2½ to 6 in. inclusive. Weight, 120 lbs.

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Sanitary Engineer

Increase Your Efficiency with Jardine & Toledo Pipe Threading Tools

Range ⅛ in. to 12 in.—All sizes threaded at one cut. Effective tools in which the dies open out, as the tool advances on the thread, so that the proper taper is made. This relieves friction on the pipe and conserves every ounce of power for cutting. The dies cut only with the cutter mouth. Beautifully designed machines in which there are no complicated contrivances to get out of order and make trouble, they work so easily, smoothly, rapidly and accurately.

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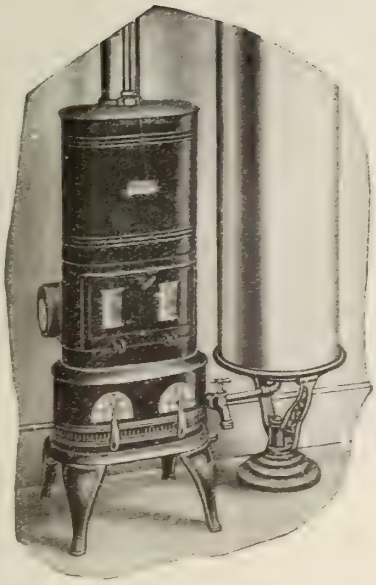
Winnipeg, Man.

McClary's Water Heaters



McClary's

FLORENCE OIL WATER HEATER
Illustrated at the left

An independent unit—can be installed anywhere. Simple operation. Washing water 10 minutes. Bath water 40 minutes.

McClary's

No. 60 GAS WATER HEATER
Shown on the right

Double coil of pure copper. Results guaranteed.

Don't forget to ask us about our Electric Water Heater with three-heat switch—for connection with storage boiler.

Our Nearest Warehouse can supply you

McClary's

London Toronto Montreal Winnipeg
Vancouver St. John, N.B. Hamilton
Calgary Saskatoon Edmonton

TORONTO MARKETS

(Continued from page 32)

went into effect. The current movement of these products is generally described as fair, with plenty of room for improvement. The feeling is evident that more activity should be noted during the ensuing months, as these lines are expected to reflect to a certain extent the general increase in building. Following are prevailing discounts:

VALVES—

	Per cent
Compression work, standard	45
Fuller work, standard	30
Bath cocks, compression	41
Do., Fuller	25
Flatway stop and wastecocks, stand'd..	54
Roundway stop and waste cocks, std...	46
Brass steam cocks, standard ½" to 2 ins	50
Do., do., do. 2½ ins. to 3"	43
Globe, angle and check valves, std.	25
Mueller globe, angle and check	25
Mueller composition disc steam valves..	33
J. M. T. valves, screwed	20 10
J. M. T. gate valves, screwed	25 10
Jenkins gate or straightway, screwed...	25 10
Jenkins globe, screwed	19 10
Radiator valves, standard	58
Do., removable disc	58
Emco, J. D., rad. valves, screwed	33
Emco swing check, ⅜" and ½"	40
Do., Do., other sizes	33
Webber gate valves, screwed	33
Emco globe valves, std.	25
Emco globe valves, J.D., screwed	33
Basin cocks—	
No. 0 and 1 Fuller pattern	30
Quick opening No. 3633	50
No. 3623, plain or index handle	34

BRISK ACTIVITY IN TROUGH AND PIPE

Toronto.

Eavestroughing business is now generally on a brisk plane with seasonal improvement in the movement of these products having been recorded during the past few weeks. Conductor pipe and elbows are also in good demand, and both manufacturers and distributors look for an active season. Prices on these lines are unchanged, list quotations and discounts being given below. While small orders generally predominate, yet it is stated that the aggregate constitutes a fair volume, and brisk trade is expected to continue as the season develops.

TROUGH EAVE—

O. G. Square Bead and half round. Size in girth	
8 in.	15 90
10 in.	17 70
12 in.	21 20
15 in.	28 80
18 in.	36 50

Less 70 and 10 per cent.

PIPE (CONDUCTOR)—

Plain, round or corrugated. Per 100 ft. in 10 ft. lengths.	
2 in., in 10 ft. lengths, list	18 40
3 in., in 10 ft. lengths, list	22 30
4 in., in 10 ft. lengths, list	29 60
5 in., in 10 ft. lengths, list	40 00
6 in., in 10 ft. lengths	49 00

Less 70 10 per cent.

ELBOWS (CONDUCTOR)—

2 inch, list	5 25
3 inch, list	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00

Less 50 per cent.

INGOT METALS NOW SHOW FIRMER TENDENCY

Toronto.

A slightly firmer tendency continues evident throughout the ingot metal markets. The recent improvement noted in tin, lead and spelter, is being held, and increased consumer interest is now reported as lending a brighter outlook in the metal market generally. Prices are generally remaining at the higher levels recently announced.

Winnipeg Markets

WINNIPEG, June 13.—Price revisions in the markets covering sanitary and heating supplies have been less numerous during recent weeks, but a stronger tendency has been developing in several lines, this being a reflection of the strength of the steel industry in general. Many products, such as soil pipe and fittings, eavestrough, conductor pipe, range boilers, pipe fittings and wrought piping, are experiencing improved seasonal trade.

FAIR BUSINESS IN SOIL PIPE AND FITTINGS

Winnipeg.

Current trade in soil pipe and fittings is reported as fairly brisk, with special improvement in this direction having been noted during the last few weeks. Owing to the demand not being up to expectations during the earlier months of the current year, the manufacturers now report that they are considering some curtailment in the ratio of production, supplies now being plentiful to meet the prevailing demand.

SOIL PIPE—

2 and 3 in.	27½%
4 in.	37½%
5 and 6 in.	32½%
8 in.	10% adv.
2 and 3 in.	47½%
4, 5 and 6 in.	50%
8 in.	10% adv.

INCREASING REQUIREMENTS FOR PIPE FITTINGS

Winnipeg.

There is little change in pipe fittings, but the demand is increasing and prices are unchanged. Following are the prevailing discounts:

PIPE FITTINGS—

Malleable, Class A	65% off.
Do., Class B and C	70% off.
Unions	45% off.
Do. Dart. ¼ to 2	25 and 10% off.
Dart., ⅛, 2½ to 4	20% off.
Cast Iron Drainage	30 and 10% off.
Cast Iron Elbows, Tees, Crosses, Return Bends, Caps and Lock Nuts	25%
Reducers	30%
Bushings	30%
Plugs	25%
Wrought Couplings ⅛ to 4"	25%
Do., 4½" and larger	10%

WROUGHT NIPPLES—

Close and Short, up to 4"	50 and 10%
Do., 4½" and larger	40 and 10%
Long 4" and smaller	55 and 10%
Do., 4½" and larger	45 and 10%

BETTER MOVEMENT IN TROUGH AND PIPE

Winnipeg.

Sales of eavestrough, conductor pipe and sundry lines show improvement each week. It is anticipated that a continued brisk trade will be realized all through the summer months. The undertone of the market is little changed, the firmer tendency still being apparent. Prices are as follows:

EAVESTROUGH AND PIPE—

Eavestrough per 100 ft., 8 in., $5.06; 10 in., $5.63; 12 in., $6.75; 15 in., $10.13.

Conductor pipe, 2 in., per 100 ft., $6.19; 3 in., $7.13; 4 in., $9.00; 5 in., $12.75.

GRADUAL PROGRESS IN RANGE BOILER TRADE

Winnipeg.

Trade in range boilers is reported as being on a gradual improvement, the past few weeks bringing a somewhat brisker movement. Business up to the present has not been satisfactory but better conditions are expected for the next few months. Quotations are as follows:

RANGE BOILERS

30 gal.	$ 9 60 each
35 "	12 50 "
40 "	13 75 "
52 "	22 60 "
66 "	35 00 "
82 "	42 50 "
100 "	60 00 "
120 "	65 00 "

WROUGHT PIPE MARKET NOW ON FIRM BASIS

Winnipeg

The firm tendency recently noted in the wrought pipe market has continued to develop and the future position is described as very strong. This change is attributed to the increasing gains in the steel industry generally, an improvement that has been more or less reflected in practically all steel products. However, the revised tariff on wrought piping may ease this market to a certain extent. List No. 54 still remains the selling basis, and is as follows:

BLACK PIPE

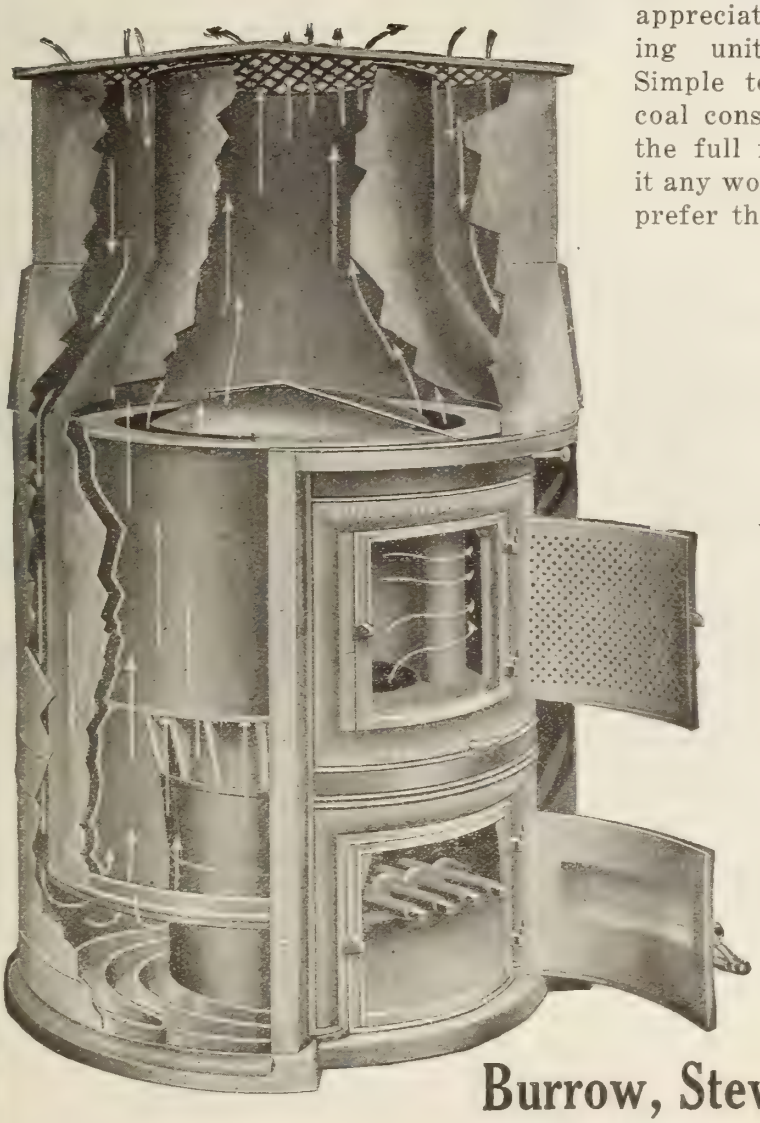
F.O.B.	Winnipeg	Calgary, Edmonton, Lethbridge & Medicine Hat.	Saskatoon. Regina.		Brandon.
LIST NO. 54.					
⅛	$ 6 25	$ 0 28	$ 0 20	$ 0 17	$ 0 11
¼	4 52	0 47	0 34	0 30	0 19
⅜	4 67	0 62	0 45	0 40	0 26
½	5 95	0 94	0 67	0 59	0 38
¾	7 20	1 25	0 90	0 79	0 51
1	10 04	1 85	1 34	1 17	0 75
1¼	13 60	2 51	1 80	1 57	1 00
1½	16 26	3 01	2 15	1 88	1 21
2	21 88	4 04	2 88	2 52	1 62
2½	34 61	6 40	4 60	4 02	2 68
3	45 26	8 38	6 03	5 28	3 39
3½	58 88	10 12	7 20	6 30	4 05
4	69 75	11 97	8 53	7 46	4 80
4½	81 22	13 91	10 04	8 75	5 62
5	94 73	16 30	11 60	10 15	6 52
6	122 86	21 10	15 00	13 14	8 44
7	181 18	26 14	18 62	16 28	10 46
8L	190 38	27 50	20 00	17 50	11 25
9	267 05	37 60	26 96	23 59	15 16
10L	248 00	35 20	25 60	22 40	14 40

GALVANIZED PIPE

⅛	$ 8 50	$ 0 28	$ 0 20	$ 0 17	$ 0 11
¼	7 04	0 47	0 34	0 30	0 19
⅜	7 09	0 62	0 45	0 40	0 26
½	7 89	0 94	0 67	0 59	0 38
¾	9 41	1 25	0 90	0 79	0 51
1	13 50	1 85	1 34	1 17	0 75
1¼	18 29	2 51	1 80	1 57	1 00
1½	21 87	3 01	2 15	1 88	1 21
2	29 43	4 04	2 88	2 52	1 62
2½	46 54	6 40	4 60	4 02	2 68
3	60 86	8 38	6 03	5 28	3 39
3½	77 65	10 12	7 20	6 30	4 05
4	92 00	11 97	8 53	7 46	4 80
4½	105 60	13 91	10 04	8 75	5 62
5	123 15	16 30	11 60	10 15	6 52
6	159 70	21 10	15 00	13 14	8 44
7	.....	26 14	18 62	16 28	10 45
8	.....	27 50	20 00	17 50	11 22

"It's a Jewel!"

That's what folks say about Burrow, Stewart and Milne's Jewel Pipeless



The Jewel Pipeless is known and appreciated by the public as a heating unit of proven reliability. Simple to operate—economical in coal consumption and efficient in the full meaning of the word,—is it any wonder discriminating people prefer the Jewel?

Dealers:

You can cash in on the popularity which the Jewel has created in the public mind by displaying it on your floor.

Just let people know you handle Canada's most popular heating system and sales will follow. If you aren't getting your share of Jewel profits get in touch with us to-day.

Burrow, Stewart & Milne Ltd.

HAMILTON - ONTARIO

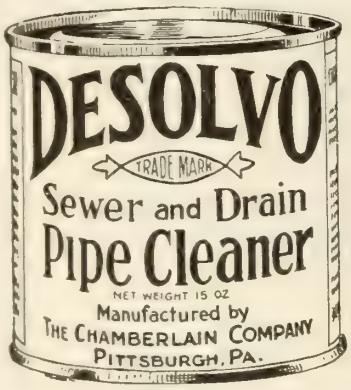
Branches: Toronto, Winnipeg, Montreal

Allpriser—
Your Price Clerk

Write for further information

K. B. ALLISON

4 Irwin Ave. - Toronto, Ont.



Saves Tearing Up the House and Lawns

Desolvo is the modern way. It gains goodwill for you by clearing clogged or frozen pipes easily, quickly, in a common-sense way. The old method of tearing up floors, lawns, shrubbery and flowerbeds until the point of trouble was reached, could not help but leave a feeling of resentment in the customers who were so served.

It saves you money and time on your job to serve customers quickly and agreeably by using Desolvo.

THE CHAMBERLAIN DESOLVO CO., LTD.

109 Church Street, Toronto

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THE TRADE

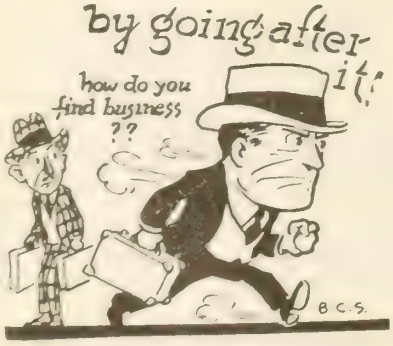
Is Respectfully Cautioned

to specify

RIVETED RANGE BOILERS

Made by the old reliable

TORONTO HARDWARE MFG. CO., LIMITED

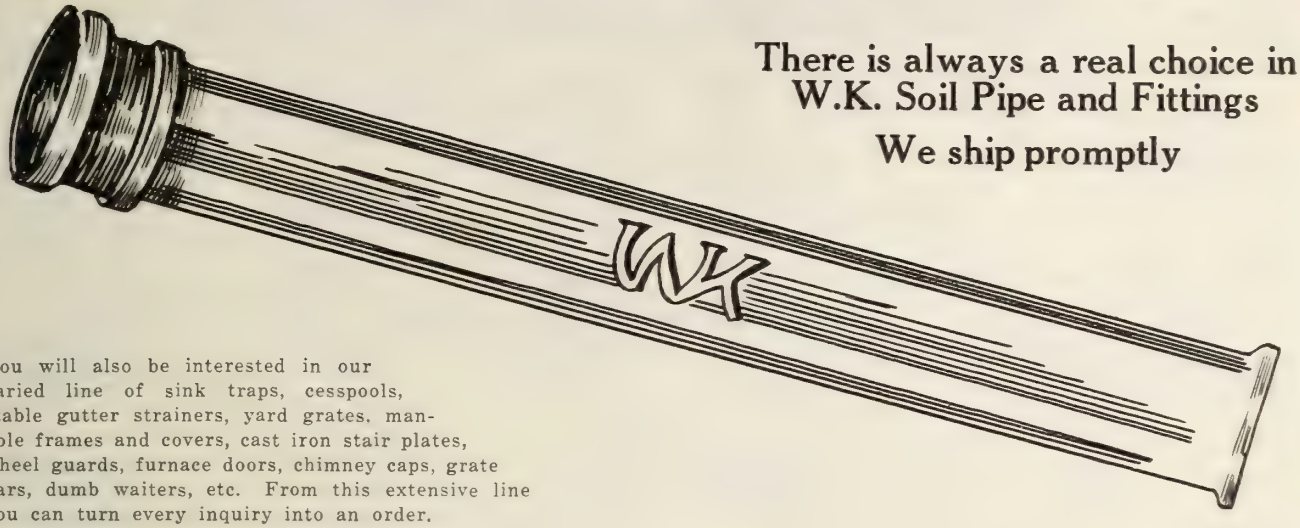


¶ Yes, it takes a lot of going after, all right.

¶ The fellow who hasn't got everything at his finger tips is a back number today.

¶ Sanitary Engineer will "keep you hep" to what's happening in the plumbing, heating and tinsmithing field.

Soil Pipe and Fittings



There is always a real choice in
W.K. Soil Pipe and Fittings
We ship promptly

You will also be interested in our varied line of sink traps, cesspools, stable gutter strainers, yard grates, manhole frames and covers, cast iron stair plates, wheel guards, furnace doors, chimney caps, grate bars, dumb waiters, etc. From this extensive line you can turn every inquiry into an order.

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VULCAN
Pure Air Furnaces Superior in Radiation?

because they give off a more satisfactory amount of heat in proportion than any other furnace, on account of the greater total area of radiation surface.

Easy to operate
Profitable to install
Strongly constructed of heavy metal

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BOLTS AND NUTS
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Kerr Engine Co., Ltd., Walkerville.
James Morrison Brass Mfg. Co., Toronto.
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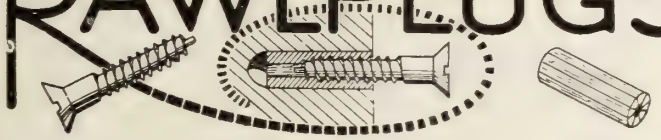
Workmanship That Endures
Fix it With
RAWLPLUGS



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The use of Rawlplugs means that the job is done right, and will stay right. Hence their rapidly growing popularity.

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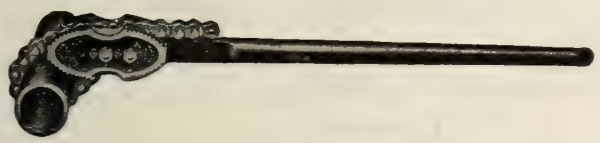

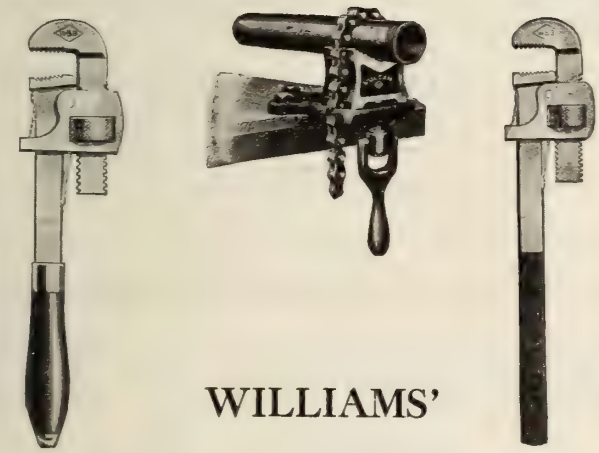

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SUPERIOR PIPE TOOLS
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STILLSON WRENCHES

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J. H. WILLIAMS & CO., Limited
"The Drop-Forging People"
77 Thorold Road, St. Catharines, Ont.

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I Should Say So
"Neat"
Well, I guess Yes

Combination Bath Waste and Overflow, with trap combined, all above the floor, adjustable, adaptable to all styles of bath tubs, fitted with accessible clean-out plug. Made of heavy cast brass, heavy cast overflow strainer properly nickeled; in short it is an acquisition to any installation and is a time-saver for the engineer in installing his work.

Its utility goes without saying

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LIMITED

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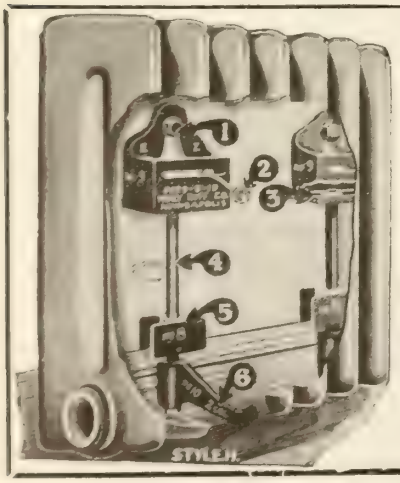

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Reasonable in Price

(1) One Bolt.
(2) Invisible Washer.
(3) Horizontal Adjustment.
(4) Vertical Adjustment.
(5) Baseboard Adjustment.
(6) Made for Wall and Column Radiation.

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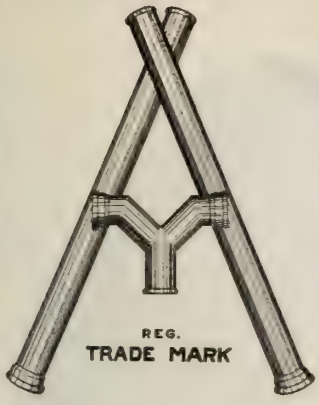

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AND

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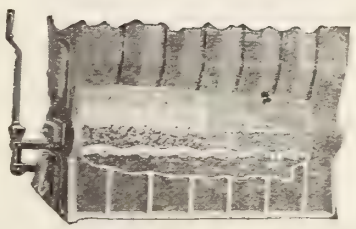

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That's what Burnham Boilers are. Great big man's size heat givers for cold, bleak days. Or on uncertain spring days they run at half time just as economically as when at full blast. The grates shake half at a time, so you could run half the boiler at a time.

Write us for complete information.

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(Boiler Department)

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Burnham Cosy Comfort Heat BB

Factory: St. Catharines Ontario

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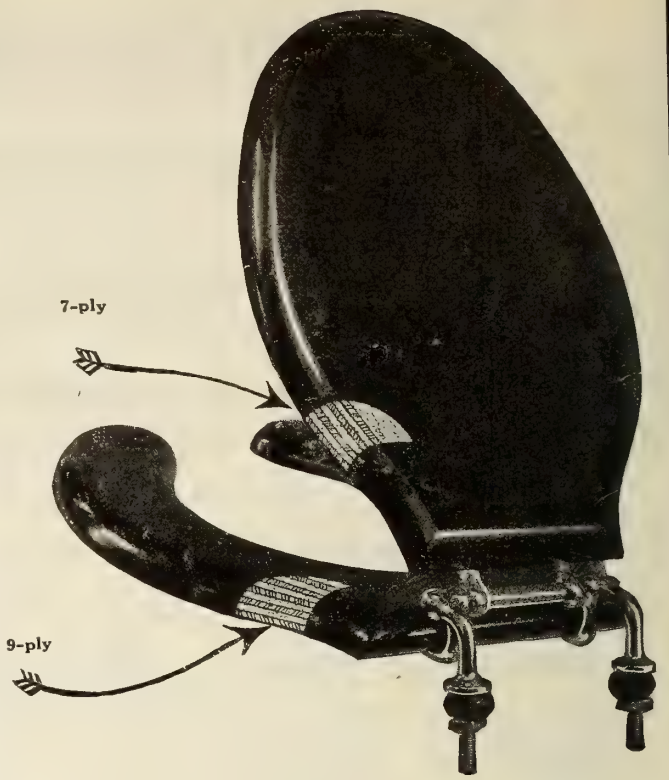
Veneer Toilet Seat

Strength Cleanliness Hygiene

Manufactured of air-seasoned wood veneer in 7 and 10-plys, according to the amount of strain and wear required of its respective parts; the veneer held together by means of our special wood cement that is proof against extremes of heat, cold and dampness, the Everlasting Toilet Seat will outlast any other on the market.

This efficient toilet seat is specially recommended for cold, damp basements, schools, factories or other public places where the closets are subjected to all manner of abuse or rough usage. The Everlasting Veneer Toilet Seat will never crack, warp or split. It will help you on many a contract.



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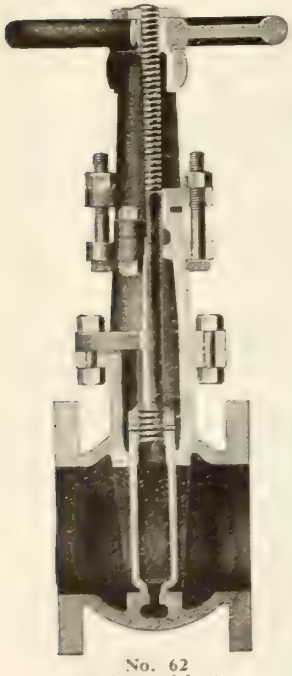
Acton Vale, Que., Canada



No. 62
4¼-in. and larger

Kerr (Keystone) Iron Body Bronze Mounted
Gate Valves
With Outside Screw and Yoke

Standard Working Steam Pressure, 125 pounds
Standard Working Water Pressure, 175 pounds
Hydraulic Test Pressure ..... 300 pounds

These valves are specially designed to meet the specifications of the National Board of Fire Underwriters, The Associated Factory Mutual Fire Insurance Company and The Fire Protective Association Specifications. The Stuffing Boxes are bushed with bronze and are of the depth and width specified by the above specifications.

The Glands are bronze bushed, and made of malleable iron.

Rings are screwed in type, same as our non-rising stem valves, and the bronze stems are of the diameters and thread set forth in the specifications above referred to.

Handwheels are of the specified diameters and are mounted as required. Yoke arms are cast solid to bonnet on valves 2½" to 4" inclusive, and are bolted to bonnet on the larger sizes.

Full area through port.

Can be packed while under pressure when full open or shut.

It will pay you to remember the "Kerr" (Keystone) Gate Valve.

THE KERR ENGINE COMPANY, Limited
Valve Manufacturers
WALKERVILLE, ONTARIO

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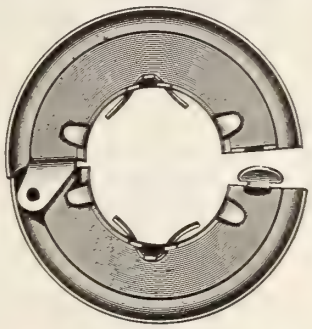
"Perfection Line"

Reinforced Floor and Ceiling Plates

No. 10 A & 15 Narrow Flange

No. 10 & 12 Regular 1" Flange



No. 10 Made in all sizes from 1/4" to 6" inclusive

The Beaton & Cadwell Mfg. Co.

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PATENTED 1921.

ELECTRIC WATER HEATER

After looking at other Water Heaters inquire about the Supreme—makers of Gas and Electric Water Heaters.

Manufactured by

THE SUPREME WATER HEATER MFG. CO.

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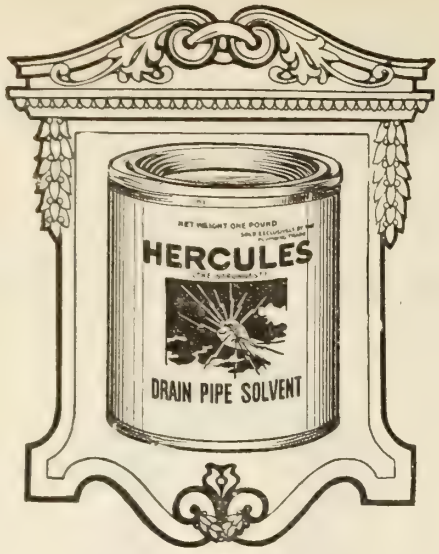

Genuine - Efficient - Profitable

When ordering a Drain Pipe Solvent to complete your stock be sure you order "HERCULES"

It has NO FUMES.
Hercules gets right to work and quickly clears the stoppage.
If you have not used Hercules send for a sample can at once.

HERCULES CHEMICAL CO., INC.,
440 Washington Street, New York City.

W. H. Cunningham & Hill Limited

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Sole Agents for Dominion of Canada

WROUGHT PIPE

Suitable for the approaching period of building activity, road construction, etc. This is a line of great importance in making successful, profitable contracts. Our C. T. Brand of Wrought Pipe has been

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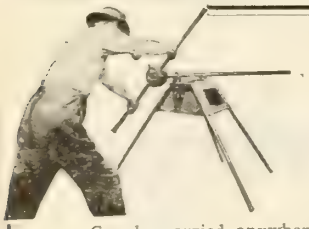
by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trademark. We carry this line of reliable pipe in sizes ⅛-in. to 4-in. Black or Galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your Jobber for C. T. Brand Wrought Pipe

Canadian Tube and Steel Products Co., Ltd.
Operating Canadian Tube and Iron Co., Limited
Works at Lachine Canal, Montreal

Tapped Closet Bend

Easier to attach
More permanent
Cost less



The Martin Portable Vise Stand

Light in weight—
only fifty pounds

Can be carried anywhere without inconvenience.

Put up in two seconds; no bolts, screws or fastenings needed.

Use the Martin Portable Vise Stand where pipe or conduit must be bent, cut or threaded.

10 days free trial.

If your jobber can't supply you—write us.

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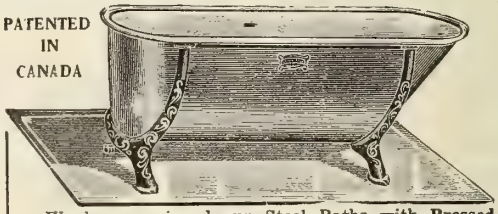

Better Selling Value Than Ever

We have equipped our Steel Baths with **Pressed Steel Removable Legs** and 3 inch **Roll Rim** around the top, for which we have secured a Canadian Patent. This **Roll Rim** adds greatly to the selling value of

TWEED ENAMELLED STEEL **BATHS**

They now look like the expensive cast enamel baths but are the **same price** as before.
Our new patent Roll Rim Enamelled Steel Baths are now ready for shipment.—Order samples.

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Easily Cleaned

The APEX Closet Bowl has special features that place it in a class by itself.

Clean-out device located at head of trap. Any obstruction can be located and removed in five minutes without disconnecting from floor or water. Cannot overflow. Silent in operation.

Find out all about the APEX before installing another closet bowl. Canada Patents for sale.

THE APEX SUPPLY CO.
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Bull Dog
Brand
Seats & Tanks

Strongly made of superior materials, and thoroughly proof against warping, opening, etc. Investigate the Bull Dog line of products.

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Hot Water—10 sizes,
600 to 3,600 sq. ft.

Built
for
Service

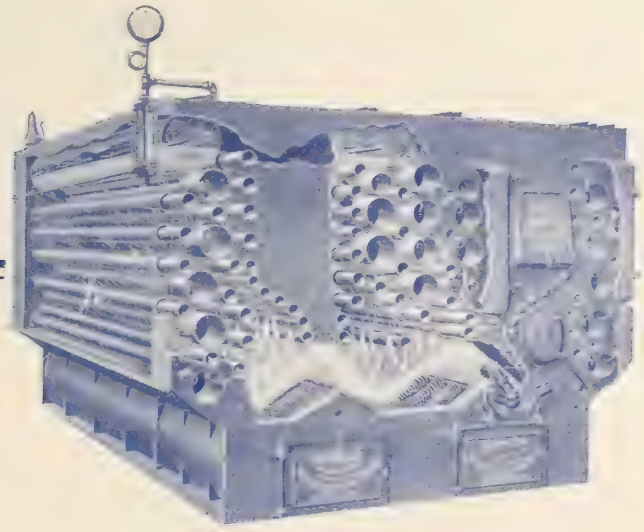
Steam
27 sizes, 375 to 10,000 sq. ft.

It Always Pays to Install A
Spencer Heater

This is not exaggeration and what is more we will explain the reason in a very few words:

"The 'Spencer' feeds uniformly only as fast as coal is consumed, giving exact control. In the coldest weather the Spencer heaters have maintained temperatures 48 hours without attention."

Will efficiently heat any type of building. Easy to run and requires little attention. Any kind of coal may be used (hard or soft), coke, fuel oil or gas—burns in a smokeless manner and with a constant service.



Spencer Heater Company of Canada, Limited

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The Super Tank

THAT'S what people call the New Design—No Trouble VitrO Tank.

Their attention is at once arrested by attractive new design and the brilliant snowy whiteness of this new product of VitrO manufacturing ingenuity.

Outfitted with the usual VitrO mechanical features of course!

To display this 1922 VitrO is to sell it.

GALT BRASS COMPANY, LIMITED

GALT - - ONTARIO

Every Tank Tested

VITRO NO TROUBLE TANK

Every Part Perfect

Sanitary Engineer
Plumber and Steamfitter of Canada

Vol. XVI. PUBLICATION OFFICE, TORONTO, JULY 1, 1922 No. 13

The Tank That Stays White

The attractiveness of a well appointed bathroom is often marred by a discolored tank.

Our Vitreous China Closet Combination is a fixture **that retains its snowy whiteness indefinitely.** It is easily kept spotlessly clean with a damp cloth. The tank and bowl are beautifully designed and are made of the same material — vitreous china.

The best grade of red brass is used for the internal fittings and all connections are machined to standards to facilitate installation.

All good jobbers carry "Emco" plumbing supplies and sanitary fixtures.

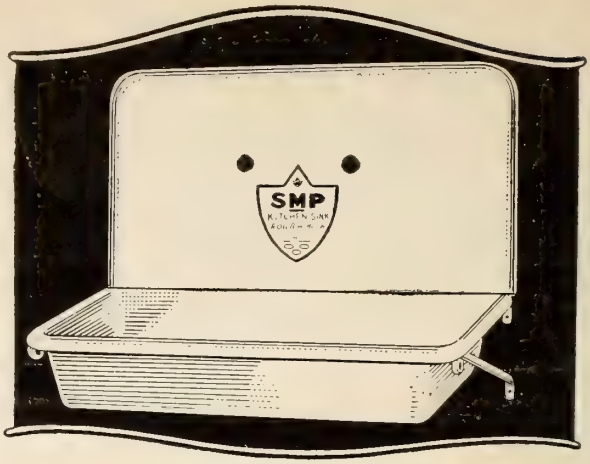
"An 'Emco' Combination is a masterly creation"

Empire Brass Manufacturing Co.

LIMITED

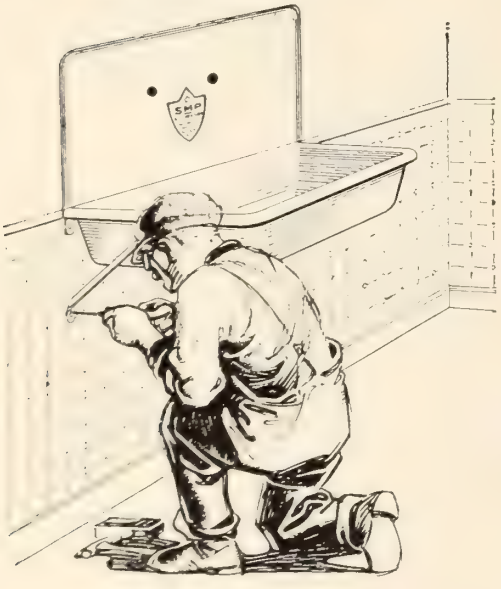
London and Toronto, Canada

Saving Money in Sinks



Here is the golden opportunity of the year for plumbers and hardware men. This SMP White Enameled Roll Rim Sink introduced by us a few weeks ago after seven years' testing and experiment has been greeted and accepted in a most gratifying way. As we expected, the very low price, the light weight and the high quality of these sinks has won instant approval. A wide gap in the sink market has been filled by the

SMP *White Enameled* ROLL RIM SINKS



Each sink is packed complete ready for shipment including nickel-plated brass strainer, special adjustable brackets, and couplings for iron and lead pipes. It weighs only 58 pounds, less than half the weight of other sinks. Think of the money this would save in freight charges on even a short haul.

The price is $9.90 Ex Warehouse, Toronto. Compare this figure with the cost of other sinks and you will see a big difference, a difference that in one year would amount to a very large saving. It is 18 inches by 30 inches in size, with a back 16 inches high. It is made of 16 gauge Armco Rust Resisting Iron over which are fused three coats of a very special enamel. Write at once for particulars.

SHIPMENTS MADE PROMPTLY

SMP QUALITY TRADE MARK

THE SHEET METAL PRODUCTS Co OF CANADA LIMITED

MONTREAL EDMONTON TORONTO VANCOUVER WINNIPEG CALGARY

SMP QUALITY TRADE MARK

Three Essentials In a Well-appointed Bath-room

A Canadian Solid Vitreous Closet

From a sanitary point of view the closet bowl is of course the most important individual fixture in the bath-room and its selection should therefore be made with care and discrimination.

The hard-burned impervious texture of Canadian solid vitreous ware, the clean white glazed surface of which has no affinity for dirt or germs, is par excellence the most perfect material of which a closet can be made.

Add to this superior quality of material an extensive range of graceful yet practical designs and a recognized superiority of action, and the plumber can be assured of offering his client the very utmost in closet utility.

A Canadian Solid Vitreous Tank

Why choose a tank of different material from the closet itself, liable to discolor, crack, peel, scratch, open up at joints, or otherwise become unsightly, unsanitary and unusable, when at practically the same cost you can furnish a Canadian solid vitreous tank, made of identically the same material as the closet?

No dirt will cling to the live-white hard-burned glazed surface of this tank; there are no seams to open up; no lining to corrode and leak; no varnish or enamel to scratch, chip, peel or discolor—in a word it is the most beautiful, durable and sanitary tank obtainable.

A Canadian Solid Vitreous Lavatory

Home-builders of discrimination promptly realize the comfort derived from using a Canadian solid vitreous lavatory in preference to one of any other material.

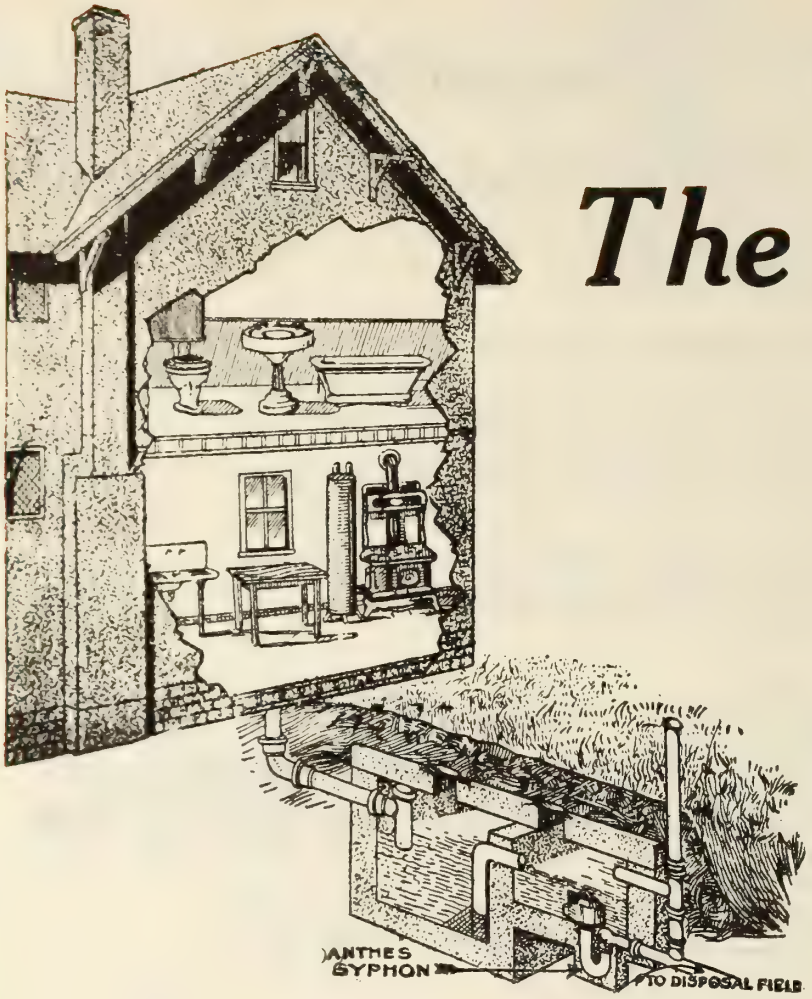
There is refinement inherent in its very make-up—it is made from exactly the same material as the closet and the tank—impervious hard-burned clay through and through—with a live-white durable glossy surface, which has no attraction for dirt or germs and is as easily kept clean as a china plate.

A distinction of pleasing harmony is obtained by employing all three fixtures on any installation.

CANADIAN POTTERIES
LIMITED
SAINT JOHNS
QUEBEC

Sales handled exclusively through recognized jobbing houses

The Finest M



The ANTHES Syphon

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ney-Maker on the Market

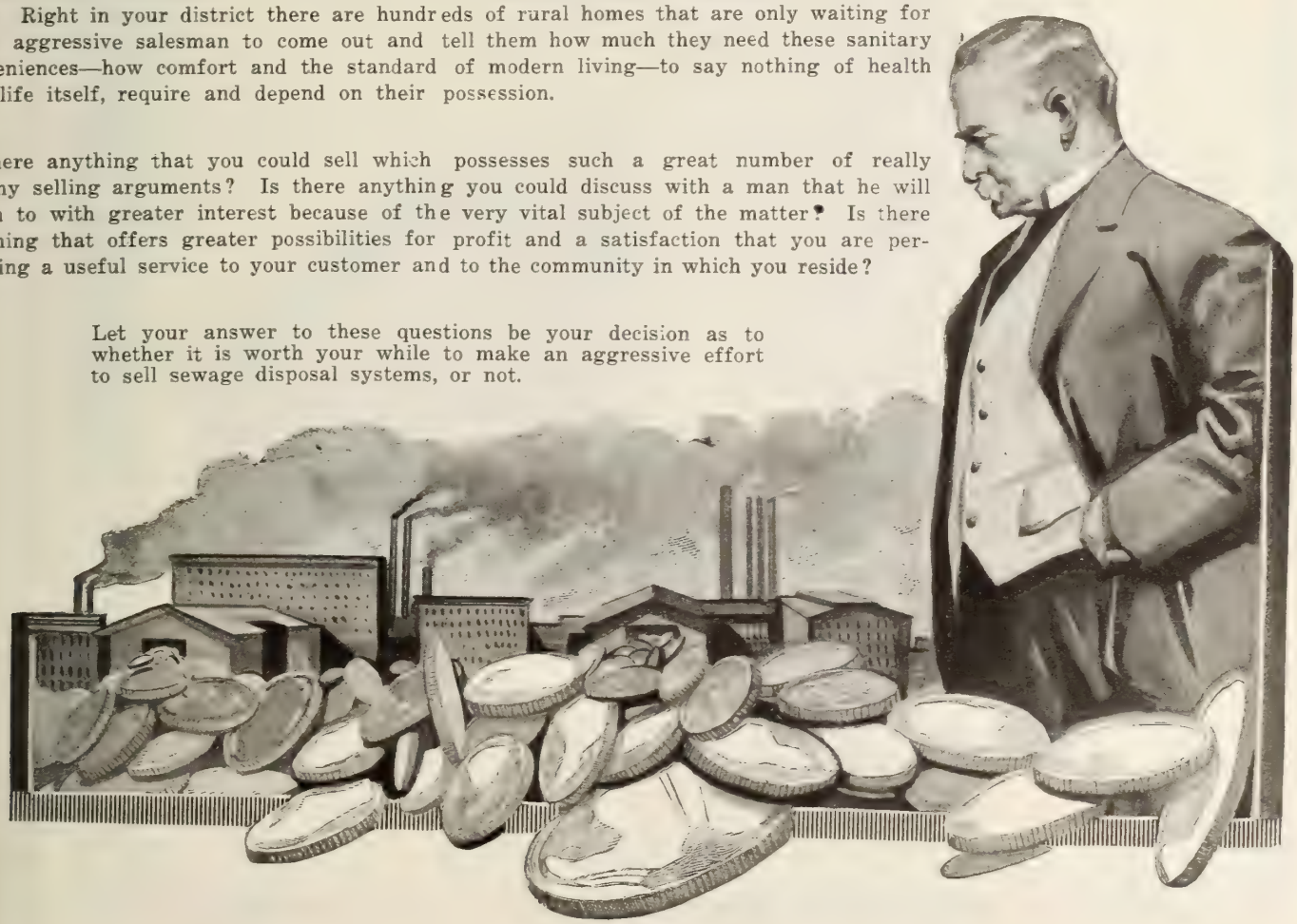
o these Sanitary Engineers in Canada who are devoting serious effort in selling sewage disposal systems much redit must be given to the fact that they are not only making big money, but that they are spreading propaanda that will mean a tremendous sale of plumbing fixtures. Naturally the ones who were energetic enough o sell the sewage disposal system will cash in on the sale of the other equipment.

o those Sanitary Engineers who are not devoting any time to the sale of sewage disposal systems, we have a ew words to say.

n the first place when you sell a man on the idea of sewage disposal, you automatically ell him on the necessity of a water system and plumbing fixtures. Consider the possibilies. Right in your district there are hundreds of rural homes that are only waiting for ome aggressive salesman to come out and tell them how much they need these sanitary onveniences—how comfort and the standard of modern living—to say nothing of health nd life itself, require and depend on their possession.

s there anything that you could sell which possesses such a great number of really orthy selling arguments? Is there anything you could discuss with a man that he will sten to with greater interest because of the very vital subject of the matter? Is there nything that offers greater possibilities for profit and a satisfaction that you are perorming a useful service to your customer and to the community in which you reside?

Let your answer to these questions be your decision as to whether it is worth your while to make an aggressive effort to sell sewage disposal systems, or not.



TEN YEARS ago Sandy McIntosh
GRADUATED FROM the
JOURNEYMAN CLASS and
HUNG OUT his
SHINGLE WHICH told the
WORLD THAT he was a plumber and
STEAMFITTER. FOR nine years and
NINE MONTHS, Sandy starved and
SWEATED AND fought to
KEEP HIS head above
WATER, BUT—Sandy wasn't a
BUSINESS MAN even if he was
A GOOD plumber. When he
CHARGED $75.00 for a job he didn't
KNOW BUT what the material and
LABOR ACTUALLY cost him
$74.99. IF it did of course he
WOULD HAVE charged more but
HE DIDN'T know. All he
DID KNOW was that he
WASN'T MAKING money.
SANDY BEGAN to figure that
PLUMBING AND steamfitting was a
HELL OF a business. One day
HIS BROTHER dropped in. He
HAD A plumbing business
IN THE next town. Sandy said:
"HOW'S BUSINESS, Andrew?"
"FINE," REPLIED Andrew. "I'm
MAKING MONEY. So
COULD YOU, Sandy, if you
KNEW YOUR costs. Why don't you
LET ALLPRISER be your price clerk?"
WHICH SANDY did.

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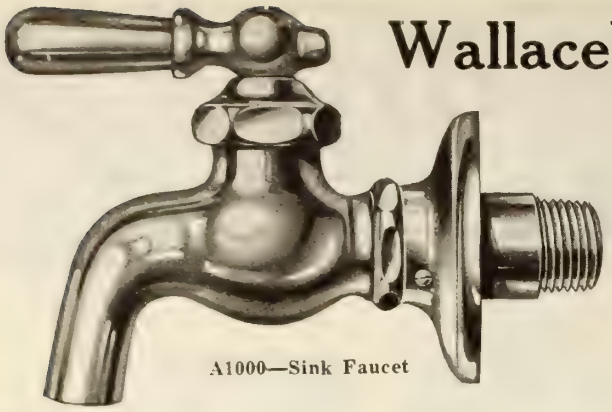
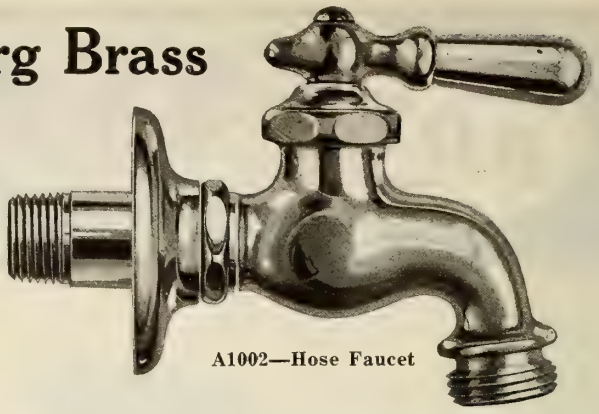
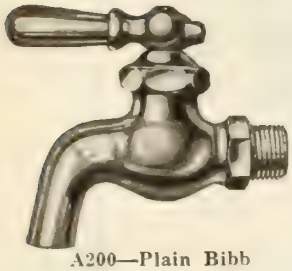


A1000—Sink Faucet

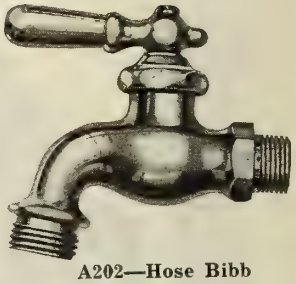


A1002—Hose Faucet



A200—Plain Bibb

A3200—Bath Cock



A202—Hose Bibb

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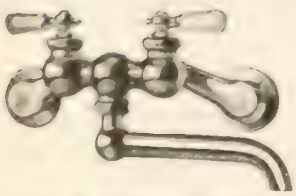
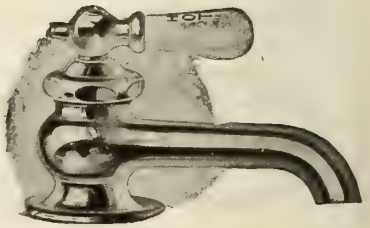


A100—Mixing Faucet

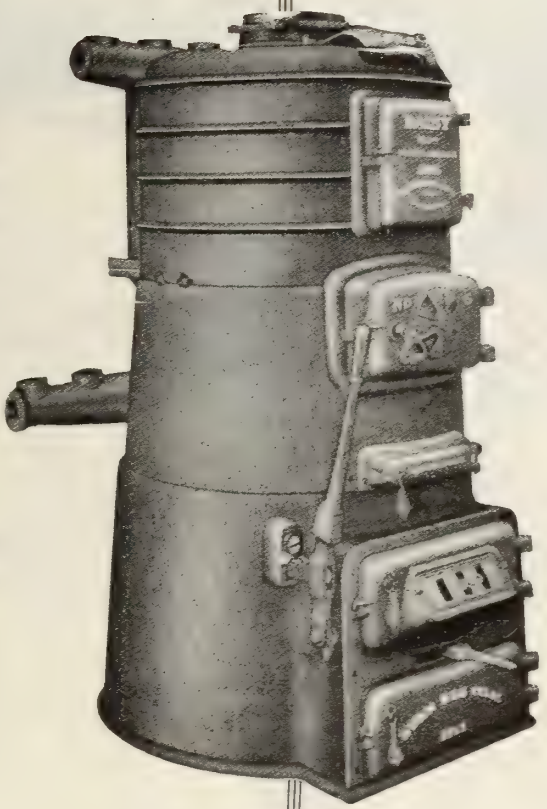
A2000—Basin Cock



A1900—Basin Cock

Another Daisy Record

Burns 92 Hours *Makes Warm Friends Everywhere* without attention



Several weeks ago a "Daisy" user in Toronto attended to his furnace as usual before going to bed. This was Thursday night at 11 o'clock. Friday, Saturday, Sunday and Monday were so mild that he did not bother to look at the furnace at all and naturally presumed that it had gone out.

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If you are not getting your share of this "Daisy" business, get in touch with us to-day.

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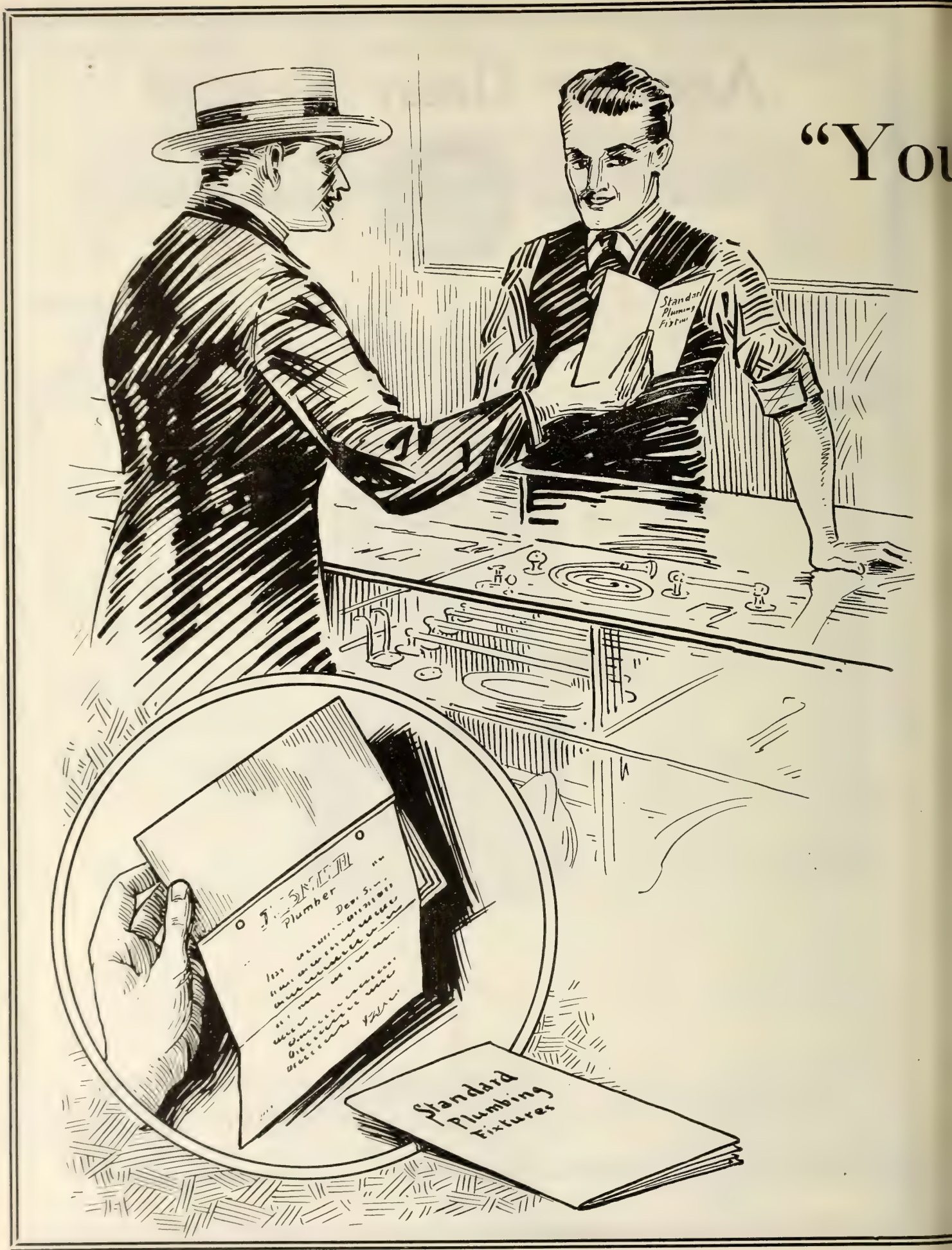
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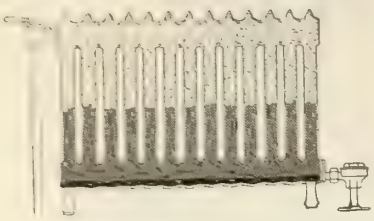

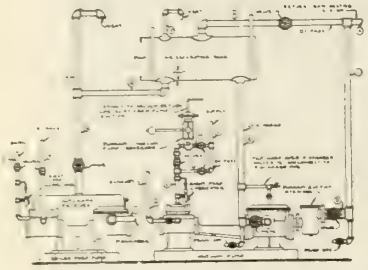

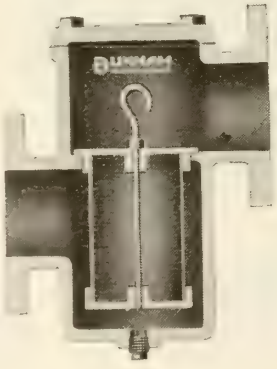

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SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

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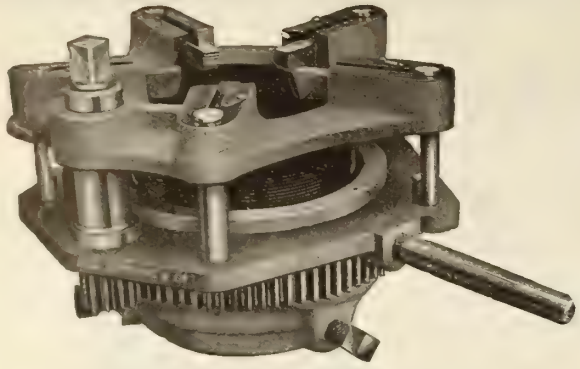

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Vol. XVI. TORONTO, JULY 1, 1922 No. 13

Abolishing Use of Rural Privy Pits

House Shortage of Past Few Years and Resulting High Rents Force Poorer Citizens to Outskirts Thus Providing New Sanitary Problems to be Solved—Primitive Methods No Longer Possible Without Danger

By BENJAMIN KIRK

THE MINIMUM of sanitary conveniences required for homes in the City of Toronto according to the judgment of the Department of Public Health of that city, consists of an abundant supply of clean water with suitable drainage for the disposal of liquid waste matter and suitable toilet accommodation.

The house shortage of the past few years and the resulting high rents have forced poorer citizens to the outskirts where for a time the wide areas of land about them have afforded ample space for the disposal of sewage and waste material by the primitive method of evaporation, the residual solids from which provided a ready means of fertilizing the little vegetable gardens which usually adjoin such suburban homes.

The problem of transportation obviously places a limit beyond which this migration to the outskirts cannot extend and, as the high rent problem remains unsolved, the one time wide ample spaces of open country became filled up by the inrush of other home seekers until there is comparative congestion of population and the primitive methods of sewage disposal are no longer possible without danger to health.

The growth of a large city is so rapid that the conditions I have described may become well established before they attract the attention of the health authorities.

Sanitary Conveniences in Old Houses

In the older parts of the city such conditions as I have related have for decades been tolerated by the authorities in what are now central districts, until the present campaign which was instituted a few years ago effected a general clean-up which resulted in the demolition of many unsanitary old houses and their replacement by more modern dwellings. Such old houses as were capable of improvement by the installation of sanitary conveniences have been allowed to remain on condition that suitable sanitary conveniences were installed, which in nearly every instance has already been done. The number of cases thus dealt with runs into the thousands.

In the operation of this annual clean-up it was occasionally found that some worthy though poor citizen was for various reasons unable to raise sufficient funds with which to make the necessary improvements.

To meet such cases the Public Health Act, Section 25, Sub. Sec. 1 & 2, C. 58, S. 1, enacted by the Ontario Legislature empowers any Municipality to pass a By-law to apply its provisions when required for the installation of the necessary sanitary conveniences and charge the cost of the same against the property so benefited, in taxes. The City of Toronto enacted the necessary By-law, No. 6691, in the year 1913, and upwards of six hundred such installations have already been made under its provisions; one hundred and five of which were completed during the year 1921.

This By-law operates somewhat as follows: The owner of a property which has been deemed unfit for human habitation by the Department of Public Health or of a property not so condemned but which it is considered desirable to so improve by the installation of sanitary conveniences, makes application to the Chief of the Division for Housing and declares (if such is the case) that he is financially unable to bear the cost of the necessary installation and is desirous of having the city undertake the work and charge it against the property as taxes; he agreeing to accept the same after approval by the Medical Officer of Health. The payment (in taxes) is spread over five years, the unpaid balance bearing interest at 6 per cent.

Following this application sooner or later, as may be convenient, an officer from the Department visits the premises to obtain the necesary information, data, etc., from which to prepare plans and specifications, which are carefully and accurately compiled in five copies for each with four extra blue prints of the tracings; an estimate of the cost is also made from the data thus obtained. The application, with estimate of cost, is then forwarded to the Local Board of Health and if passed is forwarded to the City Council and if approved by that body, the plans and specifications are then sent to the Board of Control (one copy) with request to authorize invitation for tenders; this being done and the date fixed for closing of the same, the tenders in due course are opened and contracts are awarded, usually to the lowest tenderer in each case. The batch of work so tendered on usually consists of about twenty-five sets of plans and specifications. Each set of five copies is disposed of as follows: One copy goes to the Board of Control, one is retained in the office for the use of prospective tenderers in taking off quantities, etc., and three are for the solicitor in drawing up contracts.

There are also four blue prints from the tracing whch are respectively, one for filing with application for Permit, one for the inspector's use and the remaining two for workmen.

Testing the System

The work is inspected in the usual way by the inspector in whose district it is located; this of course includes the Smoke Test. A final inspection is also made by the officer in charge

of this special line of work who also O. K.'s the accounts of contractors on the satisfactory completion of their contracts. The contracts provides for a twelve month guarantee which of itself is a great advantage.

It sometimes happens that an applicant for this plan of installation changes his mind after all is ready for inviting tenders and, in some instances, after the contract has been awarded; in such cases much labor has been expended and expenses incurred without any corresponding benefit accruing. If the cancellation is made after the contract has been awarded, the fickle owner is liable for payment of claims by the contractor.

I favor exacting the payment of a deposit large enough to ensure good faith of the applicant as an antidote for this annoyance.

The obtaining of necessary data on which to prepare plans and specifications is frequently attended with difficulty as may easily be imagined.

The man of the house, who has the entire layout of everything under his own hat, is not at home and, not having confided his plans to his wife, she is quite taken by surprise when requested for information as to the location of W. C. or sink and the many other items of data; thus frequently tedious consultations are necessary to reach an understanding of what is wanted and as to the most advantageous way of arranging the desired conveniences.

The houses or parts of houses in which installations are made, vary in size and value from the two-roomed tar papered shack to the more pretentious solid brick, six or eight roomed house.

Fitting Up Smaller Houses

In the smaller houses it is sometimes necessary to partition off one corner of the kitchen about 3′ 0″ x 4′ 6″ to enclose the w.c. In others of even six rooms, where the families are large, it is sometimes necessary to place the w.c. in the basement.

Where it is at all probable that a bath tub, wash basin or laundry tubs may be needed in the future, provision is made for the same by the insertion of the necessary fittings in the soil pipe stack.

The advantages of the Local Improvement Act to any community and especially to a large city must be apparent to all. One such advantage of inestimable value, aside from all considerations of sanitation, is that of individual homes. An *individual home* with its own fireside around which the family may gather, let us hope, to receive from Godly and patriotic parents such wholesome admonition as will make their objective through life to be that set by the Apostle Peter (1st Pet. 11:17) "Honor all men, love the brotherhood (our neighbors), fear God, honor the King." Such a home, whether its walls be of tar papered boards or of Italian marble is an asset to the nation with which no amount of mineral wealth or other resources can compare.

Unfortunately such a home is denied to many, in part by economic conditions which compel resort to the unwholesome tenement houses or its more pretentious ally the apartment house, which with their lack of privacy and their inadequate facilities for the activities of children, condemn them to become members of an inferior and even vicious type of citizenship.

The plans are carefully made, showing in each case the course of the drain and include floor plans to show the location of W. C. and sink and every necessary detail.

Not Making Money

Some of the beneficiaries of this plan entertain a little suspicion that in some way the city is making money out of them, but of course there is no ground for any such suspicions. The fact being that no charge is made for consultation and advice in planning for them, nor for the preparation of plans and specifications and advertising for tenders, etc. There are no overhead charges; the interest charges are 6 per cent. which is below the prevailing rate and lower even than the rate paid by the City on its debentures. There is no work done in the City of Toronto that gets more thorough supervision than the Local Improvement work done under the auspices of the Public Health Act.

I am pleased to record that while some are apprehensive that so much attention is indicative of big profits going to the city or to its inspectors, very many others are very appreciative and their frequently kind expressions of it help to make a tedious and sometimes arduous task a pleasing performance.

Cost of Improvement

The cost of these improvements have varied all the way from $75 to upwards of $400, varying of course with the amount of work to be done and with the prices prevailing at the time the tenders are being invited.

At the close of 1921 the average cost of 15 houses, inclusive of cost of private drain to the sewer (where such is required) was $207.84 (8 p.d's).

In December 1919 the average cost of 25 houses inclusive of cost of private drain (where such is required) was $318.09 (20 p.d's).

In conclusion I would strongly recommend the proposition or enterprise I have endeavored to explain, to municipal bodies throughout the country and would suggest to our inspectors the advisability of taking the initiative as a means of rebutting a popular delusion that all inspectors are but destructive critics of the best efforts of workmen whose achievements in sanitary installation they can criticize but cannot emulate.

When Cheap Plumbing Is Very Expensive

J. S. Kingston, of Ottawa, Brings Out Some Interesting Points in Consideration of Proposed Plumbing By-Law

OTTAWA, Ont.—As the plumbing in a residence is of such vital importance, should not the city have its revised by-laws published in the city press previous to being finally passed by council?

There may be someone in the city who could point out weak points in some paragraphs. No man is infallible. All should help our council who are qualified to do so. Ottawa has not been without its epidemics of sickness. Often the innocent suffer for actions of the guilty.

After 40 years devoted to the practice and study of domestic engineering in some of the largest cities of the world, I have had opportunity of seeing the results of defective plumbing by-laws. I have always considered it penny wise and pound foolish to have break syphon pipes of wrought iron, concealed in partitions.

It is a fact well known to the trade that the chemical action of drain air will quickly shorten the life of that material. The rust from such deterioration falling to an elbow and often choking same, the object of that pipe, of course, is defeated.

Those who have attended lectures in domestic engineering colleges, where glass pipe and glass traps were used to demonstrate the need for such anti-syphon pipes, know how easily any trap can have its water seal broken when the anti-syphon pipe is plugged.

In days gone by, pure wrought iron pipe was vastly different from the mild steel pipe of the present. Cases have been, under some conditions, where even that pipe could be crushed like an egg-shell by the hand after many years in use, the walls of the pipe having been eaten away by continual influence of drain air.

Apart from such evils, there is always the risk of solid matter lodging and sometimes entirely choking an elbow of such pipe, when a fixture is being forced.

The great evil is that there is no means of knowing if such a pipe is eaten through, and allowing drain air inside a partition, or if an elbow is choked with rust, without an expensive test. If the test proves that such is the case, that pipe should be taken out, irrespective of whether the walls are plastered, terra cotta or marble dado. Light lead pipe, which is impervious to the action of acids and sewer air, was always used in my younger days. It is said that what is sauce for the goose is sauce for the gander also; I could never under-

(Continued on Page 42)

Local Plumber's Rural Sanitation Campaign Brought Enquiries from Halifax to Medicine Hat

An Enquiry Started Byrne Bros., Toronto, on the Way to the Successful Development of a Big Business in Rural Sanitary and Heating Equipment—"Sell the Woman" Slogan is Used—Booklet Goes to Prospects

MEANS by which an active business in rural sanitary work has been developed by Bryne Bros., Bloor Street, West, Toronto, provide some interesting details and give definite confirmation of the fact that unlimited possibilities for business of this kind exist in the most unexpected localties. A recent visit of Sanitary Engineer to this progressive firm found a very attractive and modern showroom used both for city and rural business. That the public in the community appreciate the assistance of a well equipped and attractive showroom to assist them in their choice of fixtures, is indicated by the fact that large numbers of prospects come to the store to discuss their requirements. While the representative of Sanitary Engineer was in the showroom two or three persons came to discuss their requirements. In investigating this business we were interested chiefly in finding out what these wide-awake brothers knew about getting business in the rural districts. We weren't talking to them long till we found out that they knew a great deal about this subject.

An Enquiry Started the Ball Rolling

It seems that they didn't know that there was such business until one day a man phoned in from away out in the wilderness about 20 miles away and asked them if they handled rural work. Jerry Byrne didn't know whether they did or not but he said 'yes' anyway, whereupon the man on the other end of the line said he wanted a water system, a sewage disposal system and some plumbing fixtures to go with them.

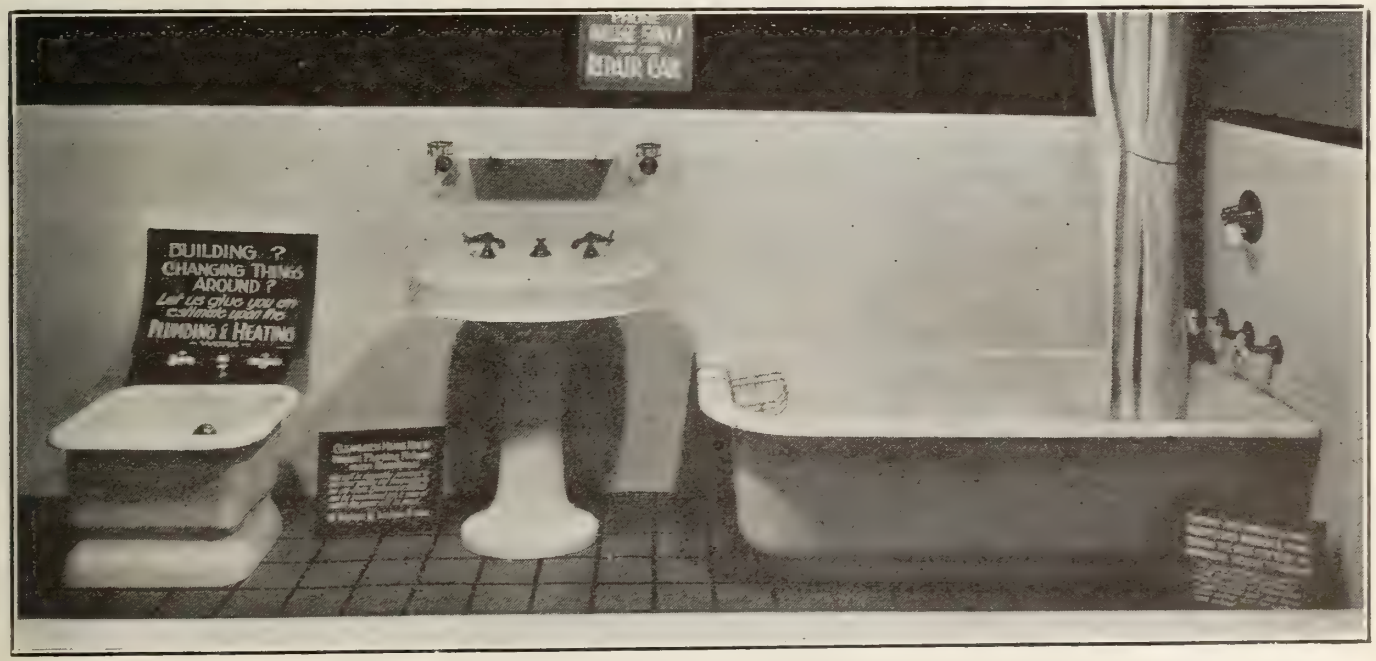
Jerry trembled as he told the man that he would be out to see him as fast as the law would allow, and got to wondering whether they hadn't been barking up the wrong tree in restricting themselves to city business and whether there were many more at home like the man who had just phoned.

Of course he got the job, and came back feeling that the country was a fine place to work in. The people were nice, were ready to place some reliance in a fellow's word and best of all—didn't haggle about price. When a neighbor of the bush dweller's phoned in a few days later and said that she ha been looking over the installation and whether they had more like that, Jerry and his brother Bob executed a war dance at the back of the shop and decided to go after rural work in an aggressive way, which after all is the only way to get it.

As soon as it became known that Byrne Bros. were open to take on all comers in rural installations, farm paper advertising men began to swarm like bees around the Byrne hive. Copy was arrainged for some of them and soon the mails began to bear mute testimony to the fact that the countryside was in desperate need of more sanitary equipment. Letters were received from as far west as Medicine Hat and as far East as Halifax, asking the Byrne Bros. to call around and show them how to be happy and still live in the country. Several letters came from points sufficiently close in to get in touch with personally and these were attended to promptly. Great care was taken in each case to see that installations were properly made and in good working order before the job was left. Often a return visit would be made a few weeks later to see that everything was working all right. Nothing was left undone to impress the farmer with the desire to give real service and this fact worked out to good advantage later. It instilled confidence in the buyer and encouraged him to recommend Byrne Bros. to others in the community who wanted similar work done.

"Sell the Woman" Slogan Used

"Sell the Woman" was the slogan adopted. Byrne Bros. showed the fair sex that the average farmer's wife worked and slaved from the time they were old enough to milk a cow till old



A showroom window display which stops many passers-by is that arranged by Byrne Bros., Toronto, as shown herewith. The enclosure is tiled to represent a modern bathroom and the various small equipment is shown as well as larger installations. Some attractive showcards with a potent message on each help to interest prospects.

age claimed them to a merciful rest. They told them that they were the hardest worked people in the world and the least thanked. They told them all this and they made them believe it. Then an impressively prepared statement of statistics was produced that proved to the women beyond all doubt that the lack of sanitary conveniences was the reason for a higher death rate in the rural sections of the country. "Why do city folks live 2.6 years longer than their country brothers?" the enterprising brothers would ask. "Sanitary convenience is the answer, madam," they would say. "Furnaces that keep the whole house evenly heated, running water in the kitchen that saves you running out in the back yard at 30 below zero, bathroom fixtures that enable the whole family to bathe frequietly and comfortably, inside toilets that do away with the necessity of that bleak trip to the outer regions on nights when even the dogs refuse to budge from their cosy place under the kitchen stove. To have this equipment ma'm, is to live in comfort in the 20th century way which keeps people in good health and enables them to enjoy life several years longer than was possible under the old standard."

No Excuse Now

It's a great line—Sure—But isn't every word of it true? Could any man or woman find a "come back" for any of the above arguments. It used to be that a rural dweller couldn't buy and enjoy the sanitary conveniences that were to be found in the city, but that's ancient history now and there is no excuse for any farmer being a back number now just because he happens to live in the country. He can enjoy every luxury possible to the city dweller. Some folks give as a reason for his backwardness in installing sanitary conveniences that he hasn't got the money, that he can't afford it. Well, he can afford a motor car, can't he? He can afford pianos and phonographs and a nice residence. Sure he can, and in the same way that he could afford those things he can afford a furnace, a water and sewage system, plumbing fixtures and other equipment of this sort that soon pays for itself in time saved through avoiding sickness and doctor's bills. Why man, he can't afford NOT to afford these things. Now you know why Byrne Bros. sold a lot of plumbing equipment in the rural districts.

Selling one man in a district was the forerunner of many other sales in the same neighborhood as was soon found out. Alex Corntossel would no sooner have his place all plumbed up than he and his wife would take as much pride in showing it off to the neighbors as a couple of kids. Brother Sid and Sister Sue would begin to feel that life on the farm was not so bad after all, and everybody felt like a million dollars generally. Naturally this set the other folk in the district thinking with the result that pretty soon there'd be some further requests for estimates on sim-

Oh Boy—Ain't it a Grand and Glorious Feelin'?

With Apologies to Briggs—By "King"

WHEN AFTER sending out those circulars on modern bathroom fixtures, Mrs. Prevaricator phones up and asks what it would cost to outfit her bathroom with up-to-date fixtures—

And your heart goes pitter patter as you tell her you'll be right around with a catalog and give her all the dope—

And you know she's got all kinds of money and you figure you can sell her the best fixtures that you have and make a nice profit on the deal—

And you ring the bell, with all the enthusiasm in the world—

And you dig right in and show her how much more comfort she will get with up-to-the-minute fixtures, how they'll increase the family health and make them live longer and how they'll add to the appearance and value of the house—

And when you've finished she asks you without any emotion what the cheapest fixtures cost and how little will you take to install same—

And when you tell her, she says that the price is terrible high and that she guesses she won't buy just now and hasn't got time to listen to any more arguments—

And you insist on leaving one of your catalogs with a request that she and her husband look it over—

And you go back to the office feeling pretty blue—

And a week later when you're passing that way you figure you may as well drop in on the off chance that there may be something doing—

And she greets you with a smile and says they have decided after looking over the catalogue to take that nice expensive set of fixtures that you recommended—

And you walk back to the office, and the birds are singing, and sun is shining, and you begin to figure that you're a real salesman, and—and Oh Boy—Ain't It A Grand And Glor-r-r-ious Feelin'?

An attractively arranged plumbing showroom is depicted in this interior view of Byrne Bros. premises, Bloor St., Toronto. The desk in the foreground is for the convenience of customers talking over requirements. The showcase is specially designed to show small bathroom accessories and behind this is the desk and office equipment. This firm does not believe in showing too much equipment in the showroom. Both rural and city trade are interested in the lines shown.

ilar installations from the same locality.

"It's a case of keeping up with the Joneses you see?" explained the brothers. "Sid Simpkins wife gets after her husband and asks him why they shouldn't have their house fitted out like Corntossel's."

Just one little fly was found in the ointment and that was the fact that a lot of farmers were so used to the time payment plan which they were given on farm machinery, pianos, phonographs, furniture, that a lot of them could not be induced to buy installations at thirty days. If some system could be devised whereby a guaranty company would assume obligations of this sort similar to the method used with the sale of motor cars, there is no doubt that a great deal more plumbing equipment could be sold, it was stated.

Mr. Byrne also suggested that if it were at all possible it would be a wonderful advantage to have manufacturers interested in rural installations, co-operate in promoting an educational campaign directed towards enlightening the farmers on the advantages and necessity of equipping their homes with sanitary conveniences.

Besides farm paper advertising, specially trained men capable of addressing rural gatherings, could be employed to spread propaganda at every opportunity.

Use of Booklet

One of the important features of the development of rural business by this firm has been the use of a 35 page booklet published to give information concerning the farm sanitary conveniences. This book is entitled "The Modern Home" and deals with pressure water systems, sewage disposal, sanitary plumbing, steam and hot water heating for rural homes, schools, churches, hotels, public buildings and summer cottages. The foreword in this booklet reads, "This catalog is designed and published in order to show in a simple manner that domestic conveniences are as practical in rural homes without waterworks or sewers as in cities or towns fully equipped in this respect and that dwellers in rural districts need no longer envy their city cousins the real conveniences that transform a house into a home.

"Sanitary Science has reached such a degree of perfection that it is now practical to have plumbing conveniences with water under pressure in even the most remote part of the country. Pressure water systems are being installed in hundreds of homes throughout the country every year, saving their owners the untold drudgery of carrying water for every purpose and paving the way for still more conveniences. We have a system to suit your requirements no matter where you are located."

The booklet goes on to illustrate and describe the pneumatic water supply system, the fact that it is a necessity not a luxury, the convenience of having running water at the faucet, the convenience of being able to wash the automobile frequently, of the advantage in fire protection, in eliminating the drudgery of carrying water. In this latter connection it is estimated the farmer's wife carries more than a thousand pounds of water a day. The advantage in the winter time of having running water in the home and barns is also dwelt on, and in the summer the advantage of being able to water the lawns and have baths is mentioned.

A brief history and description of the operation of the pneumatic water system is given whether electrically driven, by gasoline, or hand power. A full illustrated description of a septic tank system is given and a number of pages are devoted to installations of bathroom and kitchen utensils. In the center of the booklet appears a large drawing showing the complete installation with a cross section of a house and barn, of a water and sewage disposal system. Some pages are also devoted to illustrate small bathroom accessories. A complete heating system is also illustrated and described.

The use of this booklet is said to have greatly assisted in developing prospects. Care is taken in the direction of good prospects and they are then worked upon consistently.

A sample of the advertising done in rural papers by this firm is given in

the following reproduction of the text of one ad:

"Yes, I'm always working. But modern city plumbing comforts change this age-old story of the woman on the farm. No running water in the house—here is the real explanation of the drudgery which wears out the farmer's wife. Our booklet tells how we equip the country home with hot and cold water connections in kitchen, bathroom and outhouse. Septic tanks to dispose of your sewage. Write for copy."

BUILDING IS LIVEST INDUSTRY

The half year's total of Canadian construction will be a comparatively high one. If the month of June measures up to May, the first six months of 1922 will account for a shade over $130,000,000 of fresh contracts awarded compared with less than $112,000,000 a year ago. This increase of 16 per cent. in the monetary value of new building really represents an increase of 45 per cent. in actual volume the simultaneous drop in costs being taken into account. The $130,000,000 aggregate is well above the record for 1919. In 1920, generally considered a year of phenomenal activity, the monetary value of new work was higher, but the actual volume of it was smaller, inasmuch as prices were then abnormally swollen.

Plumbing Enquiries

HEALTHOMETER BATHROOM SCALE

D. A. Sands, Yorkton, Sask.—Would you kindly give me the address of the Canadian agency for the manufacturers of the Healthometer bathroom scale.

Answer—This scale is manufactured by the Continental Scale Works, Chicago, Ill. The distributing agents in Western Canada are the Chandler & Fisher Co., and the B. C. Stevens Co., both in Vancouver.

EAST LAKE STEEL SHINGLES

Wm. G. Cunningham, Canterbury Station, Ont.—Will you please advise where I can get East Lake steel shingles.

Answer—The Metallic Roofing Company, No. 1194 King St., W., Toronto.

DRAINING TILE

J. V. Hill, Oshawa, Ont.—Would you give me the address of a firm making Draining Tile.

Ans.—Dominion Sewer Pipe & Clay Industries, Ltd., Swansea, Ont.—Hamilton & Toronto Sewer Pipe Co., Hamilton, Ont.

THERMOSTATIC REGULATORS

Messrs J. B. MacKenzie, Georgetown, Ont.—Could you supply me with the names of firms who manufacture thermostatic regulators for incubator use?

Ans.—The Taylor Instrument Company, 110 Church St., Toronto, Ont.

CHEMICAL CLOSETS

The Aikenhead, Limited, Toronto.—Can you advise us who makes the sanitary chemical closets.

Ans.—Kautine Co., Limited. Toronto; Jas. Morrisson Mfg. Co., Ltd., Toronto; Steel Trough & Machine Co., Tweed, Ont.; S. H. White Co., Winnipeg, Man.

Harvest of Rural Sanitation Business Awaits the Reaping

By "King"

WHEN AGRICULTURAL products took a sharp decline a year and a half ago, the farmer's purchases took a decline also. In fact the farmer literally stopped buying altogether. For over a year this condition has existed, to the disgust, be it said of everyone who had products to sell in the rural field. No one suffered more in this direction than the sanitary engineers of this country. While the farmer was getting extremely low prices for his product, naturally he could not be induced to buy water supply systems, septic tanks, plumbing fixtures and heating plants.

In this period of buying inactivity on the part of the farmer, however, much educational work has been done by women's organizations throughout the country who are interested in making the farm a more likable place in which to live. Farm women have lived under virtual slave conditions long enough. The opportunity to travel more extensively has allowed many women who have never visited the city to see how their sisters in the large centres are living in comfort due to modern sanitary equipment.

Then too, agricultural colleges have included in their courses, instruction on the necessity of water supply systems, septic tanks, plumbing equipment and heating systems on the farm. This propaganda has been broadcast by the students to all parts of the country with the result that much interest has been aroused and much equipment sold.

Some manufacturers have not been slow to realize that wonderful development would eventually materialize in this field, and even in the depressing period through which we have just passed have continued to promote educational work, which, while it brought very meagre returns, is seed that is deeply planted and because of the strong root which it has had time to grow, will yield an excellent crop when harvesting commences. One Canadian manufacturer of septic tank equipment has spent tens of thousands of dollars in educational work of this sort and although actual sales have not justified even one tenth of this expenditure, his knowledge of the country's possibilities and his faith in the ability of the sanitary engineers of this Dominion to realize on those possibilities induces him to continue with his seemingly thankless task. May the future justify the effort. We have too few men with such vision in this country. Too many gauge the future by to-day's sales and the future rewards only those who have in some measure prepared for and placed faith in it.

The approach of the fall season finds most people cheerfully optimistic. Labor is cheaper, machinery is cheaper, money is cheaper, the crop promises to be abnormally large and the farmer will get a good price for it.

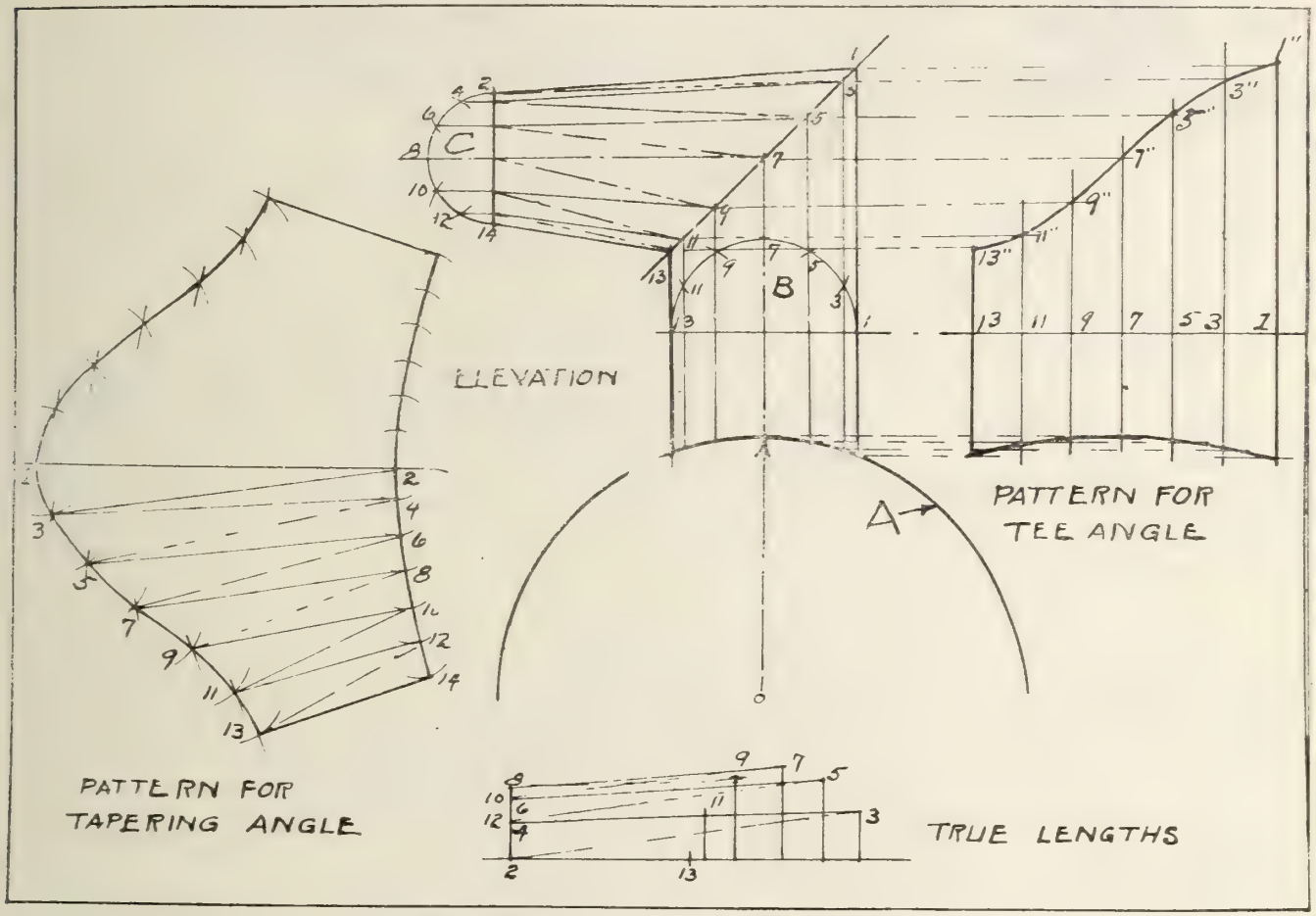
This means that hundreds of thousands of Canadian farms will provide possibilities for the sale of water supply systems, septic tanks, plumbing and heating fixtures. With prospects of money in the bank once more, farm men and women are looking forward to spending the winter in quarters that will enable them to get some of the comforts that they have not previously had. Indoor toilets, running water in the kitchen and in bathroom fixtures, every room in the house kept at an even warm temperature by an efficient heating plant—these are the comforts that will now be possible.

From now on, sanitary engineers have it in their power to reap a big harvest if they will but put the harvesting machinery in order. Oil up the wheels of the binder—these are the legs that enable you to cover the ground, which is so necessary to successful selling, for to increase your sales it is necessary to expose yourself to more of them. Sharpen the cutter blades—your tongue in other words—make it cut down all opposition to your arguments by knowing why every farm should have the equipment you have to sell. See that your binder twine is strong—your prospects have the money to buy—their health and comfort need sanitary conveniences—stick with them and bind them up tight with a contract before you leave.

A golden harvest awaits your aggressiveness. Put your selling machinery in order.

Patterns for Tapering Elbow Tee on a Cylinder

Written for Sanitary Engineer by O. W. Kothe, Principal St. Louis Technical Institute, St. Louis, Miss.



Patterns for Tapering Elbow Tee. on a Cylinder.

OUR working drawing shows main cylinder A to which a tee is attached and on this tee a tapering elbow is constructed.

Now the main feature of this design is not so much practicability as for instruction.

Many workmen feel that in attaching a tapering elbow to a cylindrical tee or elbow section, the common sweep method may be applied.

To be sure, it can be applied and the workman will make something but it is not probable that any decent fit will be made.

The reason is found in the change in diameters in the tee as it narrows down to the base.

Observe that the diameters of cylinder in point 3 and in point 11 are the same as well as in point 5 and point 9.

But now in considering the taper as a true part of a cone, we might be able to maintain the diameter in point 7, but then the increasing of the diameter on the heel will make the distance greater in point 5 and point 3 and hence this portion of the elbow will telescope outward over the cylinder.

Then the throat owing to the receiving of the lines, the diameters of taper will be smaller in points 9 and 11, so that here the cylinder will be greater in diameter than the taper, and we have a telescope again but where the tee fits over the taper.

To overcome this, the tee must be laid out by triangulation so that the diameters of the tee are built to the sectional lines of B.

Then you will have a true fitting and correctly treated.

To start this working drawing first draw the section A and after that draw center elbow for tee in elbow, also describe section B and divide in equal parts and then draw angle.

Now from each point in section the miter line 1-13 on a 45 degree B, draw lines to intersect the tee A and the miter line in points shown.

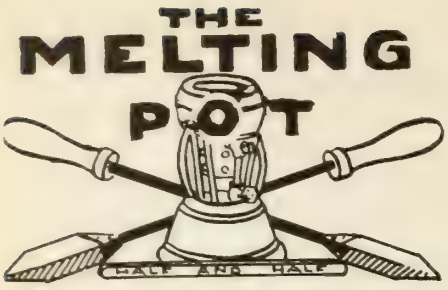
This will enable drawing the taper with a C, and building your lines to those in the miter line as shown.

After this, we project the tee picking the girth from B and projecting the lines as shown.

Now the girth for the taper along the miter must be picked from spaces as 1″-3″-5″-7″, etc., the reason being that these 2 edges fit together and they must be of the same girth.

After this develop the diagram of true lengths for the taper and lay out the pattern for tapering angle the same as has been explained from numerous other articles along this line.

Sault Ste. Marie.—The movement of freight through the canals here during the first full month of navigation ending May 31, aggregated 3,316,645 short tons, according to a report compiled for the United States Engineer's office here. This is a decrease of 2,828,418 tons, compared with the movement in similar month a year ago. The movement of wheat, downbound, aggregated 24,662,396 bushels against 12,609,469 bushels a year ago, and that of other grains was 26,734,772 bushels, compared with 12,429,593 bushels in May last year. The movement of wheat and other grains was about normal. Iron ore, downbound, totalled 1,379,850 short tons, and copper shipments were 5,898 short tons. Ore cargoes a year ago totalled 2,647,833 tons. Coal shipments to the north were 203,988 short tons of bituminous and 2,100 short tons of anthracite. In May last year the movement of coal was 2,220,000 tons. Vessel passages numbered 1,305, compared with 1,515 a year ago.



He failed in the plumbing business because——

He thought all he had to do was to open a display room, put a big stock of display, and sit back and wait for people to come in and pick out what they wanted. They didn't.

It often Happens——

She—Now I'd like something a little more modern than this for washing. I find this old basin too high.

Plumber—How about a pedestal lavatory—

She—Sir—What do you mean? I want a wash basin, not a closet bowl.

By Plumb Wrotten.

L. Ed. Pipe—I see where a lot of wholesalers are selling to consumers direct. Times must be hard when they need business that bad.

B. Low Torch—Yeh, why every day I get calls to out and give estimates on work and when I ask 'em what kinda fixtures they want, they say, "Oh, a friend of a friend of ours at the Square Deal Wholesale Supply Co. got these for us at cost price." And they get flarin' made because I tell 'em they better get their friends to install it for them.

L. Ed. Pipe—Ain't it —ll?

A minister, with two lovely girls, stood entranced by the beauties of a flowing stream. A fisherman happening by and mistaking the minister's occupation, said: "Ketchin' many, pard?"

"Sir," answered the minister with dignity, "I am a fisher of men."

"Well," replied the fisherman with an admiring smile at the girls, "you sure have the right bait."

"Yes," proudly announced the ex-captain, now manager of a new summer resort hotel, "all our employees are former service men, every one of them. The reception clerk is an old infantryman, the waiters have all been non-coms, the chief was a mess sergeant, the house doctor was a base hospital surgeon, the house detective was an intelligence man; even the pages were cadets."

"And have you any former military police?" he was asked.

"Oh, yes," he replied joyously. "When there's a good stiff wind blowing, we set them to clean the outside of the windows on the eighth floor."

Plumber Can Cash In On Increasing Tendency Toward Use of Articles of Comfort and Convenience

Written for Sanitary Engineer by Major L. Anthes, President Anthes Foundry Co., Toronto

LAST WEEK I had the pleasure of a motor trip from Toronto to Rochester.

With the improved roads which are rapidly being built throughout North America, motoring is a real pleasure and is going to become more popular as time goes on and roads continue to be improved.

The great continental railroads in their broadcast advertising inviting the public to travel by their respective lines, always emphasize the word "comfort," and the word "comfort" has a wide significance.

As motor touring increases people will be just as desirous of travelling in "comfort" as if they were on a train.

Halfway between Buffalo and Rochester on the "Ridge Road" (a delightful concrete highway) one passes through "The Incorporated Village of Medina," a lively little manufacturing centre, with long shaded avenues.

Within a hundred feet of the main four corners of the village I noticed the sign, "Public Comfort Station." A closer scrutiny showed that it was divided into two sections, one for "Women" and the other for "Men." The building itself was an ordinary duplex stone structure.

We parked our motor down the street a little way, and had our luncheon in a restaurant which we had been directed to by signboards along the route.

When we wanted a "wash-up" and all that word generally implies, we found the restaurant lacking in modern conveniences.

Then I remembered the "Comfort Station" sign, and "hiked" over.

It was all the name implied, clean, light and equipped with up-to-date sanitary fixtures. I could not help but think of the one or two odd "dungeons" in the City of Toronto, where one skids down the steps into an unsavory atmosphere. And what was Toronto's population before the city brethren thought of such a thing as a "Comfort Station?"

True, before the "drought" the hotels were the popular resort, and in those days the "lavatories" of the ordinary hotels were no rose-gardens. Furthermore it was an imposition to expect the hotels to maintain free conveniences for the general public.

To-day the "cafeteria" and "lunch-counter" serve the transient with a hasty meal, but being for the most part mere "holes-in-the-wall," they have not the space for "toilets."

But the village of Medina demonstrated to me what "could" and what "should" be done in our towns and larger villages—yes, and in some of our cities in Canada.

This opens a way for the plumbing trade to get together in different communities and urge the installation of "comfort stations." They would be a boon to weary motorists, and would bring business, for once a party of motorists alight from a car, they will probably want to "stretch their legs" by a walk up and down the main street before resuming the journey. If the shop windows are attractively dressed they will draw business, for many people are good spenders when they are away from home.

Then think of the rural community that comes in to do its shopping and to see the "high lights." First curiosity and then appreciation will make them regular patrons of the "comfort stations."

If the plumbers in the community are alive, they can take advantage of this *public show-room of sanitary fixtures.* Probably some agreement can be made with the municipal authorities whereby such stations might be kept in good working order by the local members of plumbing trade in return for permission to place attractive advertising for plumbing and heating goods therein.

It could be handled in different ways to fit in with local conditions.

Think it over and then get busy.

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights —Keep the Entire Series Where It May Be Referred To And Studied

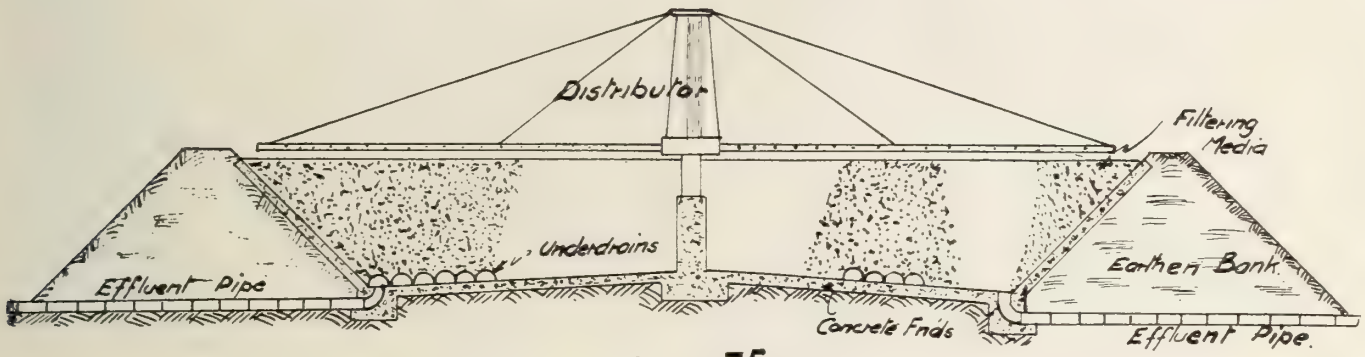


FIG 75.

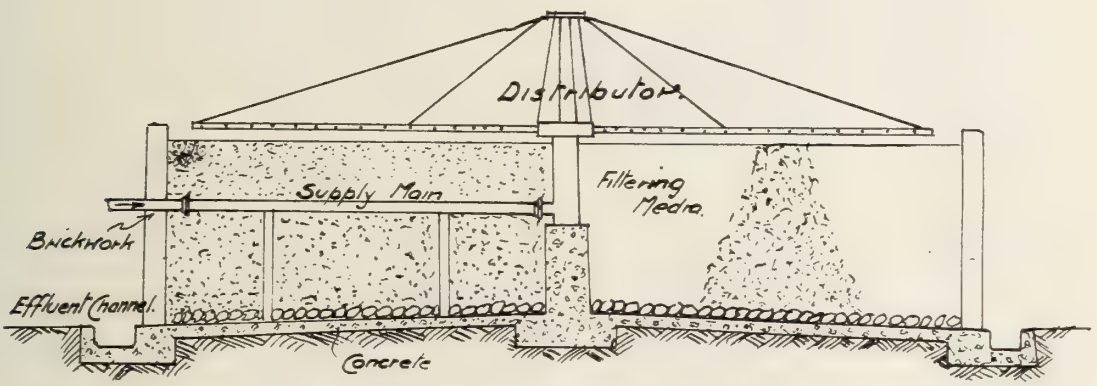


FIG 76.

(Continued from last issue)

Fig. 75 shows another form of earth constructed percolating bed constructed on similar lines to that previously described with the exception that the feed to the distributor is central but the effluent is carried away at the outer circumference of the circular bed. A different system of bed underdrainage is shown which is a cheap and effective system to adopt and consists of "split" or half pipes laid as shown, just butt joined.

Another form of circular percolating bed is illustrated in Fig. 76 and is constructed on different lines to those already described. The topography of the land sometimes required the beds being constructed above ground level, of structural material in order to obtain the necessary fall required for operating the automatic distributor.

The bed illustrated is constructed of brickwork with concrete foundations, central feed and collecting effluent channels constructed outside the beds altogether. The brick are laid as "open"' or "pigeon holed" brickwork for aeration purposes. The underdrainage is carried out by means of large boulders hand placed so that plenty of space is left open for the conveyance of water along the smooth concrete floor to the collecting channels.

In all percolating filters the drainage floor should be formed of cement concrete having a fall of not less than 1 ft. in 8 feet, it is always advisable to form above this a false floor so as to support the filtrant and provide aeration in order to develop micro-organic life under the best natural conditions for fulfilling their functions underneath the filtrant. There are several simple ways of constructing this class of floor, similar to those shown in the preceding illustrations, but the main object in designing and constructing these beds is the ventilation for, as previously described, the sewage is purified by aerobic bacteria which can only exist in light and air so for successful results this class of artificial filter must be provided with ample ventilation for assisting bacterial life.

Provision should be made, wherever possible, for ventilation at the bottom of the filter as the top layers are always well supplied on account of the liquid distributed over the whole surface from the sprinklers slowly trickling through the filtering media, draw the air through the filtrant at the same time.

Have secured contracts.—Contracts for four 54-in. pumps which are to be installed at the Sumas dam, to drain Sumas Lake, B.C., have been awarded to the Dominion Engineering Works, Ltd., Montreal, by the B. C. Land Settlement Board. The pumps, which have a capacity of 750 second ft., are driven by individual motors, which will be of approximately 600 and 1,200 h.p., two of each being installed. The contract was let through C. A. Yowill, of Vancouver, and delivery is promised for February, 1923.

Meeting To-day's Problems in the Plumbing and Heating Industry

Thoughts and Plans Which Help to Remove the Barriers or Obstacles Encountered by the Average Operator in the Plumbing and Heating Industry—Business is Founded on Confidence

Written exclusively for Sanitary Engineer by K. B. ALLISON

DURING the early days of the war we Canadians marveled at the almost unbelievable ability of Lord Kitchener in the work he undertook of collecting armies of the unseen force which he seemed to command; in being able to plan and direct the multitude of detail for the raising of these armies. To-day we have on this Continent a man who was knighted for his ability as Lord Kitchener's publicity man and we read that as a result of his propaganda, money and human energy were made loose to serve his country.

Life seems to be invariably needing propaganda from some place to cause the vast majority of us to strike out and away from the well worn path, the line of least resistance, the lethargic, easy-going "I should worry" sort of spirit that we are usually found in. Someone prods us on to increased effort but the rays of one warm summer day's sun take us back more quickly to where we were before, to that living only for the day sort of existence on the order of sand flies.

I have seen, and you have seen, many plans that were put across big because of propaganda. Propaganda is more than publicity because it is publicity plus an indirect appeal that leaves one's mind susceptible to the idea which publicity pushes over in the direct appeal. Well directed it removes the barriers against, and builds up the roads or avenues of thought, toward the goal it is striving to reach.

Removing Barriers

Through this series of articles I will endeavour to present my thoughts of business as seen in the Plumbing and Heating industry. Perhaps from some of the arguments used the barriers which loom up in front of the progress of the industry can be removed, some foundations put in for further progress or the path suggested, which with further improvements by you, will give the industry, and those connected with it, a place on the roll of honor as essential and worth while to the advancement of humanity. If I should tread on someone's toes or appear to be riding at any one time or other, any class of the industry, I hope it will be taken, as it is given, without animosity. My viewpoint of life is simple. I believe I am, to use a little slang "one of the gang," that is the average human being; that I was put here to serve my fellow beings to the best of my ability, that I, as you, really desire to do the right rather than the wrong, but that ignorance, misapplication or mis-direction causes each of us to be guilty of a lot of wrong and foolish moves. This propaganda is therefore offering direction. Let none of us think we are so good or so clever as to be above the advice of others. Let us throw all this advice in the melting pot and strain off the finished answer. At the start life seems ours for a long while but it it is only short at best, and finds most of us wishing we might start over, and with only one thought in mind, namely, that we might be allowed to profit by our experiences and do a larger or a better work.

Foundation

Talking shop is a boresome sore of thing and if it is that way to the speaker or the writer, what must it be to the listener or the reader, who would sooner discuss gardening, lodge work, fishing or a peppy motor car, than shop? Reading this may be too much like work, but then you may like it, and as I am under contract to write this way I guess I will have to continue.

Business is founded on confidence. The Householder has a certain Master Plumber do his work because of confidence. Confidence on the householder's part that the work will be done efficiently and on an equitable basis. Confidence is a very fickle thing to deal with. It is hard to hold and, once lost, much harder to regain. Your customer's confidence is based on your having the right industrial organization, each employee of which is an important factor. Lack of courtesy taking orders, abrupt handling of the customer by the bookkeeper, faulty work, slovenly mechanics, lack of diplomacy on the part of the boss, all affect confidence. Every employee should be constantly coached toward the building up of proper public relations. Make confidence one of the foundation stones of your business, and remember that as you build up your business by it so must you constantly keep it if you are to retain that business. Do not abuse it by slipping one over either by work done or by your charges for work.

Let Supply House Take This Thought

Let the supply houses take the same thought to heart. The business they establish on justified confidence is the soundest business they can have. They receive it because their customer feels sure he will receive just what he is entitled to and no more. He believes he will be served with promptness, and without favor that he will be charged a price that maintains a just profit to the wholesaler and that he is not dealing with a house with a multitude of different prices. You know, men, this idea of having a fine cut price for the scrapper destroys the moral of a better class of men—the men who are sincere in their confidence. I never did see sense of folks making an enormous profit—law or no law—and I believe the practice is against proper economic conditions and if a fur coat is worth $300 to-day the sign which says "Reduced from $300 to $150" makes me doubt the honesty of the concern so advertising. If doughnuts at 20c. a dozen represent only a fair profit to the seller the 20c is the price I expect to pay without argument, and likewise 20c. is the price I expect the next buyer to pay even with argument, quantities being approximately equal. Any industry using a flexible price destroys confidence, and therefore the basic soundness of the industry.

The relations of public and merchant, or merchant and supply house should in turn be used by merchant and supply house in their relations with labor, and likewise by labor with employer. Confidence on the part of both classes—employee and employer—that they are giving and receiving an equitable return one with the other is absolutely essential. In both classes there are so many who are wasting energy "kidding" themselves through that they clog up the wheels of co-operation—the result of confidence. If in place of so much preaching we would practise a little golden rule—practise it when it is not the easiest way—we would build up with our fellow humans sound human relations which would result in establishing confidence which in turn makes for true co-operation and who will say that individual effort is as good as team work? I have a chart which is shown herewith which explains better than my writing the factors or foundation of industry. Before reading it however I would like you to get this little story into your mind. A number of men, the number is immaterial, but we will say six, at the suggestion of one of their number swapped dollars. They each had a dollar to start with, a gross capital of six. After swapping they of course each had the same and the same gross capital. Then the prompter suggested they would swap ideas. Starting with one idea, or a total of six, each man expressed his idea to the others so that each man then had six ideas—the sum total of ideas. Perhaps in place of swapping dollars and having

gained nothing financially you might swap ideas with your men, and your public, and your business associates and thereby improve yourself.

Mr. Smith asks you Mr. Plumber for a price. He asked you because of confidence he has that you can quote him intelligently. We will suppose it is our old friend the six piece house job, and based on cost plus overhead plus profit, (if you can be induced to add both) you quote him $360. Remember that your customer does not know if your price is right but mentally there passes through his mind—"That price seems high. I wonder if he is the sort of fellow who can be induced to have a better price." Automatically his mind challenges his confidence in you and whether he merely hesitates a moment or two, or asks you if there is any chance of material coming down, or in a soft manner or rough sort of way asks you how you get such a high price that challenge is on. It is now that you are on trial and it is your handling of that challenge that makes for the strengthening of his confidence or the entire breaking down of it. Quite a large percentage usually show that they haven't any backbone about this time and immediately suggest price reductions or else try to cover up something that only exists in their imagination, namely, too much profit by stating cost figures that are in excess of reality. If some of you fellows could only be induced to pass once in a while we would soon have a higher tone to our business.

The Spineless Price Cutter

Have you ever sat in a poker game when one of the number had to call everyone in case he might miss something. Good players usually ride him and look on him as a nuisance. He never makes a killing and usually finishes the night about two bits from where he started, the sucker of the party. Well, that is about the nearest parallel I can draw to the spineless price cutter in business. The plumber or the wholesale traveller who is always trying to cut to get business never sold a job in his life. A clerk with a smattering of by-laws and the rudiments of installation could leave his boss and get business if he had a cheap enough price. There are always folk willing to pay a Ford price and think they have got Rolls Royce quality. If you cannot pass up business and insist on meeting or bettering the price of all comers, like the poor boob in the poker game who calls everybody, then get out of the game and quit spoiling it for the rest of the fellows. Don't stick out your chest and try to pose as a h'—l of a guy because you got a lot of work on that you know and the others are hearing you obtained by cutting the price. I don't care if you are a wholesale house, or a boss plumber, if you have to obtain your business on a price cutting basis then you are admitting that your ability is woefully weak and you are a failure. Now do not think by this that I believe a successful business man must always charge the same ratio of profit and never vary prices and there will be some who will argue and try to convince you there is no difference, but in doing that they are only trying to befog the issue. It is sound business to quote cheaper per unit on quantity than single articles; it is sound business to give a repeat customer an advantage over a casual one; it is sound business to sell for cash cheaper than for credit; it is sound business to sell direct from factory to customer without handling by you than it is to sell out of stock; but it is a sure sign of weakness to meet the challenge of your customer or your competitor because he suggests your price is too high. In meeting that challenge you are agreeing that your customer or your competitor knows more about your business and your ability than you do.

READJUSTMENT CYCLONE
ARE YOU ALL RIGHT BILL? LET'S CLIMB OUT AND GET TO BUSINESS
CYCLONE CELLAR
BUSINESS MAN
CYCLONE CELLAR

ATTA BOY! LET'S GET BUSY!

"Stumpers First"

When your competitor's price is lower than you know you can equitably do the work think of that game you used to play when you were a kid and say "Stumpers first." Perhaps you have done this and the other fellow seemed to get away with it but if the veil of secrecy was withdrawn from the income tax reports I am sure you would find that there are an awful bunch of four flushers, liars or incompetents in business.

Let us revert to the challenge of your customer and it makes no difference whether he has referred to your price, being higher than your competitors' or higher than he, the customer, thought it should be. In any case the challenge is purely one which the customer makes with his own confidence. He is not sure of his confidence in you and he is asking you in so many words to straighten him out on it. Instead of killing it suppose you strengthen it; suppose you finish selling him, and say to him: "Mr. Smith, I am building up my business on the continued patronage of my customers and I can only obtain and hold that patronage by giving my best in each as I can only continue to give my best if I receive a proper return, and in working for you on a cheaper price basis I am only trifling with your confidence and my own reputation and lowering the standard of my work. There is more to the plumbing work which you are asking a price on than the selection of the fixtures themselves, important though that section is, because most of our time will be taken up with the installing of material that afterwards is hidden below the floors and in the partitions. We might be careless in the installation of a two dollar fitting that, in place of giving you a lifetime of service without repair expense, would shortly cause damage and inconvenience of perhaps hundred of dollars. True we might be careless and still not cause any future trouble but then we would, as I have said before, be taking too much chance. In the matter of those hidden items too we do not buy indiscriminately because someone offers us a bargain, but buy the material which in our judgment is the best and will give the longest service. We might too have a cheaper price if we were to throw our work in slovenly in place of being workmanlike and apart from the repugnance such slovenly work would cause you it is likewise placing the work of other tradesmen at a disadvantage by their being asked to produce neatness alongside of it.

Coming to the matter of how the price is made up we would say that we have added to the net cost 15 per cent. for overhead and then 10 per cent. for profit and we leave it to the knowledge you have of your own business or of other businesses as to whether we are anything but reasonable in these figures. Compare anything else you buy with plumbing and service for service you must admit that plumbing stands well by that comparison. Your plumbing represents about 6 per cent of the value of the finished building and considering the chances you are taking in the matter of service, it would seem obvious that the fraction of a percentage you might reduce this work should not really be given any consideration. We appre-

(Continued on page 42)

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Possibilities For Rural Business

HAVING IN mind the fact that possibly a larger proportion of prospects for sanitary and heating installations exist in the rural rather than the urban districts, this issue of Sanitary Engineer is devoted largely to articles showing the experience of certain plumbers who have successfully developed this kind of business, and other articles outlining successful methods which can be employed to secure this trade.

A number of plumbers who have found town or city work scarce in the last year or two due to the fact that until recently little building had been undertaken in that period, have turned to the rural field as a source of business and by the intensive cultivation of prospects have developed a good volume of profitable business.

Farmers have got "into a rut" in their mode of living and require considerable urging before they will embark upon the expenditure of money necessary to instal up-to-date sanitary and heating appliances. Yet the fact remains that they can be convinced, they are being convinced by the score. Various educational agencies are at work to bring them to a realization of the fact that good sanitary conditions make living much more comfortable, expedite the work and give more time for recreation, keep the young people on the farm, and prolong life through eliminating the drudgery incident to farm life where no running water is available.

Phonographs, pianos and other such articles have been introduced to the farm in greater quantity than sanitary and heating appliances largely due to the amount of publicity which has been given them in the papers which the farmer reads and the aggressive co-operation of manufacturers and distributors. Co-operation of this nature is available to the plumber who wants to develop rural business and he has many more important arguments to use for such equipment than has the salesman for the other articles mentioned. Farm women influence many of the purchases and they must therefore be cultivated. As they are equally benefited by the use of such equipment it should not be as hard to sell them as in the case of implements, tractors and other labor-saving equipment which the farmer himself uses in his work. Sanitary and heating appliances can be used on every farm in Canada to good advantage, their use will pay big dividends to the farmer and the farmer's wife, and with a mass of splendid arguments and directions to work on the plumber is overlooking a veritable gold mine if he does not go after this business. A study of the methods other plumbers have used to secure such business, in this issue, will show how to go about it.

No Postage Stamps on Cheques

WHATEVER the final decision of the Minister of Finance on the details of the stamp tax on cheques, it is essential that a regulation be incorporated in the Act prohibiting the use of ordinary postage stamps on cheques, as has been the custom since the tax of two cents was originated. Up to the present there has been no means of determining how much this special tax brought in. It is a safe guess that the majority of stamps used are ordinary postage stamps and that the revenue from their sale has gone into the receipts of the Post Office Department.

Now when there is a widespread protest sincerely raised by financial and other organizations that the new tax as proposed is unjust in its accumulative volume, there are no records to determine what the returns of the previous stamp tax of two cents has been, that might serve as a comparison for the Minister in determining what volume of revenue this new tax might fairly be called on to contribute. Whatever way it is settled the subject will continue to be controversial, and in the interests of those called on to bear the heaviest part of this burden it is only fair that a special stamp be used that will make the proceeds of the tax definitely known.

Stimulate Business to Offset "Slump"

"THE ONLY man to suffer from a summer slump this year will be the man who thinks people spend all summer in a hammock."

The foregoing truth will be worth bearing in mind by all business men during the next few months. If this is done the wheels of industry will not slow down during the mid-summer months but keep business active and prepare the ground for better business in the latter part of the year.

A great deal of preaching has been done by business experts that the return of active business on a profitable basis can be assisted a great deal by aggressive merchandising action on the part of retailers. No doubt every plumber has been putting forth greater effort for business in the last year than for some months prior to that time, but in many cases there must be a lack of appreciation of the amount of energy which is required to stimulate business.

The result of this situation was clearly demonstrated to a representative of Sanitary Engineer who made some investigations among the trade in various parts of Ontario this week. The fact was revealed that of the operators called upon about thirty per cent. reported the total volume of trade for the past six weeks to be in advance of that of the best year in the past. In certain other cases where only the value of turnover was known it was reported that this was within fifteen or twenty per cent. of the value of turnover for the best equivalent period in the past. With the decline in building prices it is therefore evident that the actual turnover of merchandise was probably as great as the best equivalent period.

In other cases plumbers complained of poor business, of unemployment, of high prices, etc., and reported business to be in a very bad state. A closer investigation revealed the fact that the former plumbers were turning such factors as unemployment to good use and utilizing every possible selling help. This comparison was sufficiently extensive to prove that despite average local conditions business could be greatly stimulated providing the right methods were used. To avoid that "summer slump," thought should be given now to methods of stimulation.

To Cut Down Expenses--Spend More

The Strange Tragedy of Overhead the Villainous Enemy of Profits

or

How the Powerful Muscles Called Increased Volume Avert Disaster

THE cartoon shows you the exact details of a tragedy that has been frequently enacted in recent months, known as—The Weight of Overhead or The Flattened Business Man.

You observe the business man sitting at his desk crushed down by the villain Overhead, a husky looking brute, perched on the poor man's shoulders, who has seized the pie of Profits which he proceeds to devour. Not content with gorging the pie, the villain must flatten out the unfortunate wretch beneath him, in the bargain.

The business man struggles to find, underneath his papers and accounts, some scheme by which he may throw off the villain and extricate himself from the warm, desperate and unpleasant situation. He has but two chances. The villain is not so robust as he looks—he has gorged until he has become soft and flabby. The business man may make either or both of two moves that call for quick decisive action. He may suddenly slide out from under and escape into the next office called Economy where Overhead cannot follow—or he may bring into play those powerful big muscles known as Increased Volume with which he could easily knock Overhead into the middle of next week.

Personally we believe in the muscular effort. It is safer, surer, and disposes of the villain for all time. Hiding in the office of Economy, the business man must always be on guard. The villain will be always watchful for another chance—constantly seeking to again seize the pie.

There are not many business men wise enough to know just how to live in the office of Economy and keep away from Overhead. You cannot economize carelessly. It calls for shrewd and cautious judgment, else you cut down the very things that would keep a growing Overhead away. For example, it is unwise to cut down advertising appropriations, it is unwise to make drastic reductions in wages, it is dangerous to substitute inferior merchandise for good quality. The best economies are those that include a smaller working organization where it will efficiently do the work or a lesser expense for the smaller details that may safely be dispensed with in an establishment.

But when you use the muscles of Increased Volume you need not be so fearful. Be sure you are right—be certain that your plans will make volume grow—and you need have no fear of Overhead. His greatest enemy is the steady clang of the cash drawer bell. Use advertising judiciously, employ display to the best advantage, build your selling organization to its highest standard—go after business with all the vim and vigor you can bring into action —and Overhead will never find a place on your shoulders. He will become your servant to do your bidding, to bring you the pie of Profits that is essential to the life of a business.

In other words, to cut down your expenses spend more. You reduce Overhead by increasing volume which can only be done by more advertising, more display, more energetic effort to bring in the sales that make the cash that goes into the drawer that rings the bell that hypnotizes Overhead and helps you to subdue him and make him harmless.

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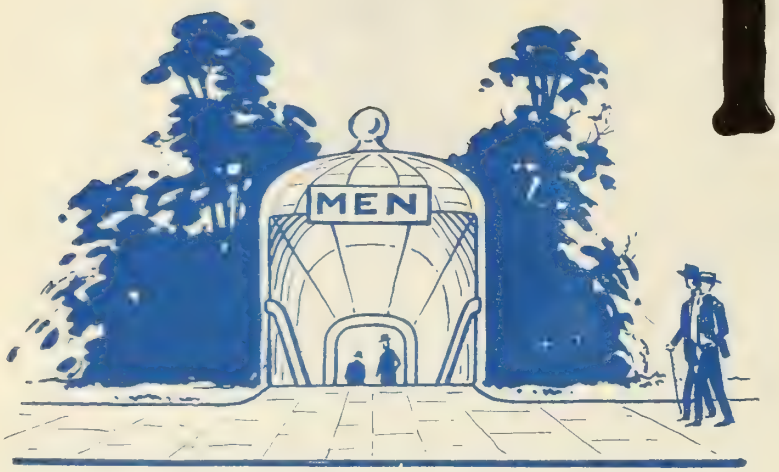

THERE is nothing that centre, be it city, town Conveniences.

There is nothing that impre gates" more and reflects the inhabitants than well conveniently placed.

Comfort stations, and lots and an obligation that ever should take upon itself to p

Use your influence in your comm more comfort stations. Get after itor of your local paper to boost w

The public admire men who are ments of this sort.

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Factories:
PORT HOPE, ONTARIO

Head Offic
1204 ROYAL BANK BL

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Company, Limited

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Montreal Office:
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News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

BUSINESS CHANGES

Sarnia, Ont.—J. Filsinger, plumber, has sold to A. R. Calcott.

Wallaceburg, Ont.—W. E. Grainger, plumber, has sold to G. R. Newkirk.

NEW FIRMS

Newcastle, N. B.—Daniel J. Donavon has taken over the store formerly occupied by G. M. Lake and is putting in a complete stock of plumbing and electrical supplies.

Stephen and George Graves have secured premises at 211 Princess street, Kingston, and are establishing a new business in plumbing and tinsmithing under the name of Graves Bros. Both men have had long experience and were in the employ of McKelvey and Birsh for many years. The store is equipped with a complete stock of fittings and fixtures for the household.

OPEN NEW SHOWROOM

Paddon Co., Ltd., Windsor, Ont., are opening a new office and display room.

OBITUARY

The death is announced of Herbert Greenleaves, joint managing director of United Brassfounders and Engineers Ltd., of Empress Foundry, Manchester, represented in Canada by Messrs. Cunningham & Hill, Ltd.

The death is announced of Mrs. Hugh C. Wallace, wife of Hugh C. Wallace of Toronto Hardware Mfg., Co., formerly manager of the Toronto jobbing branch of the Standard Sanitary Mfg. Co.

CONTRACTS AWARDED

St. Thomas, Ont.—The tender of J. A. McKenzie and Co., plumbers, 658 Talbot street, for $3,700 for the installation of a new heating plant at Myrtle street school was accepted by the Board of Education at a special meeting. Only one other tender was received coming from Hamilton and Stott, Talbot street. Their figure was $3,942. The estimate of Donald Stuart of Windsor, the heating expert who prepared the plans and specifications, was $3,500. Mr. Stuart is to receive four per cent. on the accepted tender for his services, which will bring the total cost of the new outfit to about $3,850.

INCREASE LICENSE FEE

Weston, Ont.—In future all plumbers in Weston will have to pay a yearly license of $10 and a plumbing inspector will be appointed. This step is incorporated in the new plumbing by-law.

TENDERS

Kingston, Ont.—Tenders will be called shortly for the isolation building to be erected for the General Hospital. It is hoped to have work started on the building the forepart of July.

CONTRACTS AWARDED

Kingston, Ont.—The contract for the new dairy school building to be erected here has been awarded to H. W. Watts, contractor, of this city. This contract does not include the contracts for heating, plumbing and wiring, which will be awarded later. The construction work is to be completed by November and will start at once.

Ottawa City Council adopted without a dissenting vote the recommendation of the Civic Hospital Board of Trustees, awarding tenders for plumbing and drainage, heating and ventilating and electrical wiring in the main building of the new Civic Hospital. The Garth Company, of Montreal, was awarded the plumbing and drainage contract, their price being $111,000. W. G. Edge Co., Ltd., was awarded the tender for heating and ventilation at a price of $105,581.

COMPLETE SANITARY INSPECTION

Port Arthur, Ont.— The party of sanitary engineers who have been making a sanitary survey of the Twin Cities have completed their work. Their work has been thoroughly done. They have tested the milk supplied citizens, the water supply both in Port Arthur and Fort William. Their report will be submitted to the Provincial Board of Health and by that body transmitted to the local Boards of Health.

RUSH WATERWORKS

Port Credit, Ont.—Engineer Stone expects to have the new waterworks in operation here before the end of the year, which will afford a complete water and fire protection system for the municipality. Some additions were made to meet the views of the Fire Underwriters and consist of six-inch lateral water mains on several streets. The Port Credit system proposes to give service to the southeast portion of Toronto township as far as the eastern limits of the Long Branch ranges, a similar system to that projected by New Toronto for extensions of the mains from that town.

PLUMBERS' STRIKE ENDS

St. Catharines.—The plumbers' strike in this city which has lasted for several weeks as a result of a disagreement between the masters and the plumbers on the wage issue has been settled and about 40 plumbers are returning to work immediately. The wage rate accepted is 82½c per hour, which is a 50-50 compromise of the difference. The plumbers were asked to take a cut and were finally offered 80 cents. The former rate was 90 cents per hour. After the painters' strike had been ended by a 50-50 compromise the plumbers offered to make a settlement but the Master Plumbers refused, offering 80 cents.

NEW HEATING AND PLUMBING COMPANY OPENS SHOP IN DOMINION OLD STAND

Ft. William, Ont.—S. N. Oakley, formerly manager of the Dominion Plumbing company, but who recently organized the Twin City Heating and Plumbing company, announces that his firm has leased the plant formerly occupied by the Dominion at 230 North Bay St. Mr. Oakley's firm will specialize on heating in all its branches as well as plumbing, the former being a particular hobby of the manager who has had an extended experience in this line. For a period of five years, Mr. Oakley was connected with the C. P. R. locomotive and steam heating inspection department, but prior to that was with the Northern Pacific at St. Paul as inspector of steam heat, the Chicago and Great Western and as shop foreman for the Seaboard Air Line. For a number of years, Mr. Oakley was superintendent of the Safety Car Heating and Lighting Co. of U. S. A The new firm represents here the C. A. Dunham Heating company as service station specializing on low pressure vapor systems.

PLUMBERS TO WITHDRAW FROM TRADE BODY

Dissatisfaction has broken out in the Toronto Plumbers' and Steamfitters' Union over the policy of the District Trades and Labor Council and the Building Trades Council, organizations with which the union is affiliated. The policy

of the councils, according to a malcontent, is not militant enough.

The result of the dissatisfaction was a resolution at the last meeting of the union to secede from the two councils, which was carried, according to a union official, because very few of the members of the union were in attendance at the meeting.

This may mean another fight among local trade unionists over the policy to be pursued in conducting union affairs. Efforts will be made by officials of the councils to have the union change its decision. The loss of the Plumbers' Union to both councils would be a serious one, since it is well organized and one of the strong unions of the local movement.

Recent incorporations include the name of the McPherson Plumbing and Heating Co., Ltd., with head office in Vancouver and capital of $50,000.

MAGISTRATE RIDICULES CHARGE AGAINST ELECTRICIAN

Ft. William, Ont.—According to a decision handed out by Magistrate Palling in police court he is of the opinion that the splitting up of jobs among various trades is being carried too far. The case was that of a charge against Howard E. Phipps electrician for doing plumbing work without a license, and was laid by the city plumbing inspector. The offence was in connection with the setting in of an electric water heater at the Royal theatre. There had been an electric heater there previously, which had been removed, and another was to be installed. Mr. Phipps, after connecting the electric wires, lifted the heater into place and adusted two nuts which were needed to hold it into place. It was alleged that the connecting of the wires was an electrician's job, but that he should have left it at that, and that a plumber should have been called in to lift it into place and twist the nuts. The magistrate dismissed the case and stated afterwards that it was such ridiculous ideas and practices as this that contributed to making it almost too costly to live.

Tenders are called by S. B. Coon & Son, Toronto, for plumbing, heating and ventilating of Renfrew Collegiate and Vocational School.

A sanitary engineer was persuaded by one of his sons to go with him to a boxing exhibition.

"Now, dad," said the son, exultantly, "you'll see more excitement for your two dollars than you've seen in your life before."

"I've my doubts about that," replied the father, sadly; "two dollars was all I paid for my marriage license."

New Goods of Interest to the Plumbing Trade

"FIVE-IN-ONE PLIER"

The Efficiency "Five-in-One" plier and dual wrench is being manufactured and distributed to the plumbing trade by the Republic Supply & Rubber Co., of Milwaukee, Wis. A number of uses are combined in this Efficiency Five-in-

One tool. It is adaptable in a number of ways as can readily be seen by the illustrations. The makers claim this to be a most handy and practical tool.

LUFKIN THICKNESS GAGES

The patent lock on thickness gages, recently introduced by the Lufkin Rule Company of Windsor, Ont., is a new feature of interest to users of such products. By means of a lock nut, any one or more of the leaves can be firmly held in position. The makers claim that these gages should appeal to mechanics and all repair men. They are put up in different sizes, the No. 6 size having six leaves, the No. 7 having seven leaves, and so on. The different blades are, one half inch wide and three inches long. Any two or more leaves can be separated from the other, and when locked the makers point out that this converts the tool into a limit gage.

NEW STARRETT TOOLS

The L. S. Starrett Co. has recently issued a special supplement to its No. 22 catalog, in which are illustrated and described seventeen new Starrett Tools of interest to many machinists. Among them are the following:

Metal case for 1" micrometers; nickel plated; made with round corners; lined with velvet.

Micrometer depth gauge: especially designed for mechanics requiring a depth gauge with 1-in. movement to the screw. Equipped with 3 measuring rods; capacity 0 to 3 inches, by thousandths of an inch.

Inspector's micrometer caliper gauge: facilitates accurate measurement of walls of hollow cylindrical forms.

Dial sheet gauge, for measuring the thickness of sheet products. A slight pressure on a thumb button permits the sheet to be inserted between two contacts. Release of the pressure causes the thickness of the sheet to be indicated on the dial.

SOUVENIR SUPERHEATERS

The Souvenir Superheater is the name given to the parlor type of heater by the Hamilton Stove and Heater Co., of Hamilton and Winnipeg. The manufacturers claim that the name is derived from the fact that the air is superheated by passing through the louvers, up around the fire pot and over the superheating fins. It is then distributed through the principle of re-circulation. As the superheated air rises from the heating chamber within the casing, a vacuum is created, thus automatically drawing the cold air into the louvers. The construction and specification features of the Souvenir include the following: Height over all, 48 inches; depth of firepot, 15 ins.; size of body, 23 ins. square; size of feed door opening 6½ x 8½ ins. It is made in one size only and is designed on the same lines as a hot air furnace. In appearance the makers claim that the Superheater will harmoniously blend with the furniture design in the home, being finished in gunmetal with rich copper trimmings. The complete design and effect is to resemble a modern piece of furniture.

BIBB SCREW ASSORTMENT

Sets of bibb screws and nuts, conveniently packed in small wooden boxes, with each size of screw and nut in separate compartments, are being put on the market by W. H. Cunningham &

Hill, Ltd., 269 Richmond St., W., Toronto. These assortments are described as a desirable unit in order to complete the equipment of kit of the sanitary and heating engineer. The arrangement is stated to be both convenient and practical.

British Mills Winning Back Canadian Tin Plate Business

Recent Imports of Tin Plate From Britain Indicate Big Increase in Volume While Imports From U.S. Decline—British Mills More Favored in World's Export Trade in Tin Plate

THE IMPORTANT Canadian tin-plate market, long considered a natural monopoly of the United States producers, has been favoring Great Britain recently by taking a substantial tonnage from the mother country. At the same time, the U. S. shipments to Canada are falling off noticeably. In the first four months of 1922 British tin-plate exports to Canada have surpassed even pre-war rates, totalling 18,399 tons, or about 4,500 tons monthly, as compared with 9,889 tons in the entire calendar year 1913. The American shipments to Canada, however, were less than 2,000 tons in each of the first two months this year, 2,196 tons in March, and only 1,285 tons in April, as against an average of 4,800 tons monthly in January-April, 1913.

Speaking of this situation and the general tin-plate trade revival in Great Britain, an official of a prominent Welsh tin-plate firm said: "By lowering costs in all directions British manufacturers have been able to get down to a strongly competitive basis. For the last six months the tin-plate works of South Wales have been turning out from 60 to 70 per cent. of their capacity, and there is every prospect that this will be maintained. Taking into consideration the depression in some other industries, this is quite satisfactory. With the exception of Central Europe, which is not buying at all, the industry has been able to retain all its old customers, and trade is especially active with the Far East. Until Central Europe starts to buy again, however, we can hardly hope to get up to our full capacity. A most reassuring feature is that we are getting back the Canadian market which we had lost to the Americans previous to the war."

This situation is well authenticated by a reference to recent trade statistics showing comparison between British and American trade with Canada in tin-plate. Imports from Britain in the four months January to April of this year total 18,399 tons compared with 694 tons in the same period last year. This is compared with a falling off in imports of U. S. tinplate of from 20,742 tons in 1920 and 10,450 tons in 1921 to 6,929 tons in this period 1922. The estimated imports for 1922 from present indications is 55,000 tons from Britain compared with 3,126 last year, and 21,000 tons from the United States compared with 24,045 last year and 63,000 tons in 1920. These quantities are expressed in tons of 2,240 pounds.

That British tin plate is being well received throughout the world's markets is indicated by the fact that total exports from that country total 143,000 tons for the first four months of 1922 compared with 85,000 tons last year in the same period whereas exports of U. S. tinplate have fallen off in that period from 70,058 tons in 1921 to 30,741 in the first four months of 1922. Estimates for the present year show an increase in British exports from 226,000 tons to 430,000 tons while total U. S. exports fall from 107,000 tons in four months of 1921 to 90,000 in the same period this year.

INTRODUCE NEW SERVICE

Kitchener, Ont.—Wm. Knell and Co., hardware merchants and plumbers, have introduced a novel service in connection with their business. They have had equipped a motor truck that proves helpful in service. The truck is covered and in the rear of the drivers seat is a fully equipped repair outfit. The interior resembles a miniature wareroom, small boxes or pigeon holes being arranged along each side. When any of the workmen are called out to a job they carry with them everything that would be required to complete a job no matter how small or how big. There are nipples, elbows, unions, tees, piping, wrenches, pipe cutters, threaders, in fact everything that is used on the most exacting job.

Handy Computation Table For Sales Tax

MANY of the salesmen in the retail stores are finding that it takes a good amount of time to figure the two and a quarter per cent. sales tax, and, as well as taking up the salesmen's time, it delays the customer, who if in a hurry soon shows signs of impatience. W. H. Thorne & Co., Ltd., hardware merchants of St. John, N.B., have now in use a handy ready reckoner for the use of their clerks. C. O. Morris, the traffic manager for this firm, spent some time in compiling this ready reckoner, which has been found to be most useful. Every clerk has a copy, and a copy is in the possession of the office staff who require it. The table is as follows, and can be used in many ways, for any amounts. It would be a good plan for all hardware merchants to cut out this copy, and paste it on a sheet of heavy cardboard. It will be found to be a great time saver, both for customers and merchants.

SALES TAX AMOUNTS 2¼%

1	.02	37	.83	74	1.67
2	.05	38	.86	75	1.69
3	.07	39	.88	76	1.71
4	.09	40	.90	77	1.73
5	.11	41	.92	78	1.76
6	.14	42	.95	79	1.79
7	.16	43	.97	80	1.80
8	.18	44	.99	81	1.82
9	.20	45	1.01	82	1.85
10	.23	46	1.04	83	1.87
11	.25	47	1.06	84	1.89
12	.27	48	1.08	85	1.91
13	.29	49	1.10	86	1.94
14	.32	50	1.13	87	1.96
15	.34	51	1.15	88	1.98
16	.36	52	1.17	89	2.00
17	.38	53	1.19	90	2.03
18	.41	54	1.22	91	2.05
19	.43	55	1.24	92	2.07
20	.45	56	1.26	93	2.09
21	.47	57	1.28	94	2.12
22	.50	58	1.31	95	2.14
23	.52	59	1.33	96	2.16
24	.54	60	1.35	97	2.18
25	.56	61	1.37	98	2.21
26	.59	62	1.40	99	2.23
27	.61	63	1.42	100	2.25
28	.63	64	1.44	200	4 50
29	.65	65	1.46	300	6.75
30	.68	66	1.49	400	9.00
31	.70	67	1.51	500	11.25
32	.72	68	1.53	600	13.50
33	.74	69	1.55	700	15.75
34	.77	70	1.58	800	18.00
35	.79	71	1.60	900	20.25
36	.81	72	1.62	1,000	22.50
		73	1.64		

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

Markets at a Glance

A NOTABLE trend towards firmer price conditions on numerous products enjoying seasonal activity, provides one of the features in the plumbing and steam-fitting supply markets. Materials needed in building are especially recording a brisk movement, while the rising cost of certain raw material elements is a prominent factor which has been offset in some circumstances by keen competition for prevailing business. Enameled ware products, boiler tubes, closet outfits and range boilers, supply examples in this class, while galvanized sheets, radiators and boilers, corrugated sheets, trough and piping, furnaces and other minor manufactured steel products are items found in the former group.

Galvanized sinks, wash boilers and miscellaneous galvanized wares record a price reduction of seventeen and one-half per cent, this quotation being given instead of the previous list prices. Quotations on stove pipe and stove pipe elbows are also lowered five and ten per cent. respectively, while to those interested a new discount sheet involving an increase of around ten per cent. has been issued on stove and tire bolts, coach or lag screws, machine and carriage bolts and nuts. Small iron rivets and burrs appear with an upward revision through new discounts. Cement producers admit that the institution of any proposed reduction in freight rates would most likely be reflected in a proportionate lowering of prices on this product. Rumors regarding the possibility of future advanced quotations on furnaces, owing to higher costs of raw materials, have been noted on the current sanitary and heating markets.

Eastern centres also record a slight revision in lapweld boiler tubes, these quotations, however, being nominal under the circumstances as shading continues for what moderate business prevails. Scrap materials are also slightly quieter in tone, the keen interest having subsided somewhat. The recession in ingot metals was not expected, this being styled as merely the downward swing of the pendulum, a movement which has been more or less in evidence after each brief session of improvement. Current trade in such products as corrugated sheets, eavestrough and conductor pipe, and builders' supplies generally, are registering notable activity, with seasonal trade reported good in hardware circles. One feature is the recent improvement in collections.

Montreal Markets

MONTREAL, June 28.—Price changes on the local market for plumbing and steam fitting supplies are again numerous, and of particular interest is the higher quotations on radiators and boilers through the removal of extra discounts quoted last month. Higher prices are also announced on stove and sink bolts through revising discounts. Iron rivets and burrs record an advance in price of approximately ten per cent. Another important change in a downward direction is announced on stove pipe and elbows, both black and galvanized, also on all galvanized ware. Lapweld boiler tubes in the larger sizes again show a price revision, this market not displaying the strength that is evident in other iron and steel products.

Galvanized sheets continue in active demand with the undertone firm, and the position of bar iron and steel remains steady to firm. Slight price revisions are again recorded in scrap metals, while solders are slightly easier after showing recent strength. The undertone of cotton wastes is still very firm but prices remain unchanged. Corrugated sheets are in a strong position, and eavestrough and conductor pipe are now in active seasonal demand.

NEW HIGHER LIST ON BOLTS AND NUTS

Montreal.

Superseding list of January last, a new list on bolts and nuts is now issued, and advance in quotations of varying extent is recorded on the different lines listed. Carriage bolts are increased approximately 15 per cent., machine bolts from 11 to 13 per cent., coach or lag screws about 20 per cent., and plow bolts 7½ per cent. The net quotations off list on all nuts is reduced, thus also advancing prices.

STOVE AND SINK BOLTS NOW 70 PER CENT. OFF

Montreal.

Accompanying the revision on other bolts are higher prices on stove and sink bolts. These are now quoted at less 70 per cent., former discount being 72½ per cent.

STOVE PIPE AND ELBOWS REDUCED IN PRICE

Montreal.

Accompanying a reduction in galvanized iron ware are reduced prices on stove pipe and elbows. Following are present quotations:

Stove pipe elbows, black and galvanized	10%
Stove pipes	5%
Light black elbows, 5" and 6", doz.	$1.47
Light black elbows, 7", doz.	1.70

REVISED DISCOUNTS ON RIVETS AND BURRS

Montreal.

To those interested, small iron rivets and burrs are advanced in price. Iron rivets, 7/16 and smaller, black and tinned, and iron burrs are now quoted less 47½ per cent. off list prices.

FURTHER SLIGHT CHANGES IN SCRAP QUOTATIONS

Montreal.

Further minor revisions are announced in the waste material markets. Nonferrous metals continue fairly firm, although the strength of copper is not as marked as a few weeks ago. This condition is attributed to a slight recession in demand, the undertone remaining satisfactory. Iron and steel scrap again show an improvement, and the quotations on heavy melting steel are slightly increased, offerings of this material being reported a little lighter than in recent weeks. A little quieter period is now reported by dealers, but they look to future business with a fair amount of optimism. Action taken with regard to lower freight rates should offer a stimulant to trade, high transportation costs being a big obstacle to scrap dealers in the past. Average dealers' buying prices are as follows:

SCRAP—	
Automobile Tires	0 50
Rubber Shoes	0 02½
Yellow brass	0 05 to 0 06
Red brass	0 08¾
Light brass	0 04
Scrap zinc	0 03½
Lead, heavy	0 04¼
Lead, tea	0 02¼
Light copper	0 08½ to 0 09
Heavy copper	0 11
Wrought iron, R. Rd., No. 1 per gr. ton.	10 00
Malleable scrap (ton)	9 00
Pipe scrap (ton)	6 50
Heavy melting steel	9 50 to 10 00
No. 2 busheling	8 00
Boiler plate	8 00
No. 1 machinery cast	20 00 to 21 00

RANGE BOILER PRICES REMAIN UNCHANGED

Montreal.

Notwithstanding a price reduction is announced on many lines of galvanized ware, range boilers remain unchanged, quotations being 50 per cent. off standard list prices. Manufacturers of these products state that owing to labor absorbing the greater amount of cost in producing boilers, the market is little affected by the cost of raw materials. Current trade shows little change, building construction in the larger centres demanding a fair amount of supplies. Following are list prices and discounts:

RANGE BOILERS:—	
5 Gallon	$13.50
12 "	14.00
18 "	15.00
25 "	16.50
30 "	17.50
35 "	20.50
40 "	22.75
52 "	38.00
66 "	60.75
82 "	74.00
100 "	103.00
120 "	117.00
144 "	164.00
168 "	187.00
192 "	210.00

Discounts. Standard weight, 50 per cent. Extra Heavy, 40 per cent.

REDUCED PRICES NOTED ON GALVANIZED WARE

Montreal

Galvanized iron ware, with a few exceptions, is reduced 17½ per cent. Quotations were formerly net list, and the above discount is now quoted. The revision covers a wide range of goods including galvanized tubs, pails, oil tanks, sinks, wash boilers, fire pails, garbage cans, sap buckets, etc. A revision is also made in one-coated enamelled ware, and net prices are now quoted where formerly a discount was given off list prices. This change covers a reduction on some articles, while other goods show a price adjustment.

SOMEWHAT BETTER TRADE IN PIPE FITTINGS

Montreal.

Current trade in pipe fittings has expanded somewhat during recent weeks, although orders are still confined to sorting requirements. While the usual active season for fittings is now at hand dealers are apparently willing to take care of immediate needs only. Quotations are unchanged as follows:

PIPE FITTINGS—	
Cast iron fitting	30%
Plugs, cast iron	30%
Do., solid	30%
Do., countersunk	30%
Bushings, cast	32%
Do., malleable	32%
Unions	47%
Flanged unions	30%
Flanged fittings	30%
Dart unions, black, 33	1-3%
Dart unions, galv.	13%
Nipples, 1-8 to 4", close and short	60%
Do., long	65%
Do., 4½ to 8", close and short	50%
Do., long	55%
Couplings, 4" and under	30%
Do., 4½" and larger	10%

Malleable Fittings—

Piece list effective June 1st, 1922. Discount 70-5 per cent.

ACTIVE TRADE EVIDENT IN CORRUGATED SHEETS

Montreal

Current trade in corrugated sheets is described by manufacturers and distributors as good, "we are very busy," "trade is exceptionally good," being the descriptive phrases used. Deliveries of flat galvanized sheets are somewhat slower but no scarcity is yet felt in corrugated, although this condition, coupled with increased price levels, tends to stiffen the market. In discussing the firmer trend now evident, one local manufacturer stated that while the undertone warranted higher levels, there was no direct indication of a revision up to the present. It was thought that much would depend on trade during the ensuing weeks as this factor has already greatly assisted the stronger tendency. Following are unchanged quotations:

CORRUGATED SHEETS—	Per 100 sq. ft.
No. 28 gauge	6 50
No. 26 gauge	7 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50

Less 10 per cent.

Lighter than 24 gauge and wider than 27 inches, 75c. a square extra.

FIRM TENDENCY REMAINS IN PIPE MARKET

Montreal

The wrought pipe market is again reported firm with list No. 54 still being quoted. Manufacturers point out that a strong tendency remains on United States markets owing to higher production costs and a brisk demand. For this reason it is still maintained that a lower tariff will have little effect at the present time. Demand locally is fairly good, especially on the smaller sizes which are being extensively used in home construction work.

ACTIVE PERIOD FOR TROUGH AND PIPE

Montreal

Eavestrough, conductor pipes, elbows and sundry lines continue to sell well and although sales records for May were considered satisfactory, a continuation of the present buying movement for the remainder of the month will show higher returns for June. The undertone of the market is described as steady to firm at following list prices and discounts:

EAVESTROUGH:

O. G. round and half round, per 100 ft. 8 in., $16.90; 10 in., $18.70; 12 in., $22.20; 15 in., $29.80; 18 in., $37.80.

O.G. Square bead, per 100 ft.: 8 in., $15.90; 10 in., $17.70; 12 in., $21.20; 15 in., $28.80; 18 in., $36.80.

Discount 70|10 per cent.

Conductor Pipe, Round, Plain and Corrugated, per 100 ft.; 2 in., $18.40; 3 in., $22.30; 4 in., $29.60; 5 in., $40.00; 6 in., $49.00.

Discount 70|10 per cent.

CONDUCTOR ELBOWS—

Plain or corrugated, price per doz.

2 in., $5.25; 3 in., $6.00; 4 in., $10.50; 5 in., $24.00; 6 in., $29.00.

Discount 60 per cent.

BETTER TRADE STEADIES ENAMELLED WARE MARKET

Montreal

The present volume of business in enamelled ware products continues to maintain a somewhat better feeling among distributors. Building construction, especially in large centres, is making encouraging progress and a fair amount of activity is expected in these products during the summer month. Unchanged list prices and discounts are as follows:

ENAMELED WARE—			
Sinks, roll rim—			
18 x 30			$23 00
Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$ 7 50	$ 7 40	$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in wide			51 40
Bath tubs, 5½ feet.			57 10
Lavatories—			
17x19 in. Apron F139 or P4045			15 30
18x24 in. Apron F154 or P3845 or P3847			23 60
18x21 in. Apron F169 or P4205			17 60
17x19 in. Roll rim. F241 or P4345			12 60

Less 33 1-3 per cent.

RADIATOR PRICES REVERT TO PREVIOUS LEVELS

Montreal

After a period of about four weeks in which low quotations were announced on radiators and boilers, discounts are again revised and prices revert to their former high levels, the present increase amounting to 7½ per cent. on radiators and 10 per cent. on boilers. During the time that the reduced prices existed, trade in these lines increased considerably, and apart from the general run of business for requirements of present building bookings for future were received in good volume. Manufacturers state that the announcement has

produced the desired effect, and a much better outlook is now promised. The undertone of the market is firm with the rising trend in the steel industry at the following quotations:

RADIATORS AND BOILERS—

Radiator list prices are for 1, 2, 3, 4 and 5,-column radiators per square foot.

45 in. to 38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in, $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60. Discount 59% for hot water and 60 per cent. for steam.

Wall Radiators—5 ft. $1.15; 6 ft., $1.10; 7 ft., $1.05; 9 ft., $1.05; 12 ft. $1.05. Discount 56%

Boilers—Round hot water boilers, low base only (high base discontinued); sizes from 0 to 10, 64% off list.

Square or sectional hot water or steam boilers, 15-in., 20 per cent.

For Ontario Government trimmings add 5 per cent.

Square or sectional steam boilerfs, 19 in. to 36 in., 20 per cent.

Square or sectional steam boilers, 19 in. to 36 in., 20 per cent. Ontario Govt. trimmings, 10 per cent. discount.

Round steam boilers, standard trimmings, 28 per cent. off. Ontario Government trimmings, 25 per cent.

All prices f.o.b. Toronto, Montreal, Guelph, Hamilton, St. Catharines or Brantford.

CLOSET COMBINATIONS IN FAIR DEMAND

Montreal.

Little or no change is reported in closet combinations, quotations remaining at former levels and trade continuing in fair volume owing to requirements of building operations. Following are prevailing prices:

CLOSET COMBINATIONS—	each
Closet, standard low down outfit	$25 00
Do., post hinge seat	26 00
Do., oak vitro, back strip seat	27 75
Do., oak vitro, post hinge seat	28 40
Do., china tank and back strip seat	28 50
Do., china tank post hinge seat	29 50
Do., vitro white with post hinge seat	30 75
Reversible trap bowl, less spud	11 25
Wash down bowl, less spud	10 00
Rickelieu bowl	9 00
Siphon jet bowl	16 25
Extra for spud	0 60
Add for ⅜ in. valve on supply pipe	1 25
Add for bar hinge	No extra
Deduct for supply pipe	0 80
Deduct for floor hinge	0 60
Wood strip seat and cover	3 05
Post hinge seat and cover	4 25
Oak or oak vitro tank, with fittings, less seat	14 25
White vitro, vitreous china or enameled iron tank, with fittings, flush elbow and supplies, less seat	18 50

COTTON WASTES FIRM; PRICES UNCHANGED

Montreal

Although the recent rise in the cotton market has resulted in higher prices on practically all other lines of cotton goods, the reflection on wastes has only been to the extent of maintaining a very firm undertone. Quotations are as yet unchanged, but dealers suggest that every indication points in an upward direction. Prevailing quotations are as follows:

COTTON WASTE—Cream polishing, 18c. per lb. White—XXX extra, 16c.; XX grand, 15c., XLCR, 14c.; X Empire, 13c.; X press, 11½c.

Colored—Fancy, 13½c; Lion, 12c; Popular, 9c; Keen, 7½c

Wool Packing—Arrow, 24c.; Axle, 20c.; Anvil, 16c.

Dominion Wipers—White cotton, 20c; colored cotton, 14c.

SLIGHT REVISION MADE IN LAPWELD TUBES

Montreal.

Conditions in the local boiler tube market fail to show any improvement, and prices are still being shaded to secure business, what little there is to be obtained. For this reason an easier tone is still apparent and quotations on the larger sizes of lapweld tubes are again revised, the 3½ inch being further reduced while the 3 and 4 inch are slightly increased. In making these adjustments distributors state that present quotations are also governed by stocks on hand, in view of the usual quieter period during the summer months. Following are nominal quotations:

BOILER TUBES—	Seamless	Lapweld
1 inch	18 00	.....
1¼ inch	20 00	.....
1½ inch	19 00	.....
1¾ inch	2000	.....
2 inch	19 00	16 00
2¼ inch	22 00	19 00
2½ inch	25 00	19 00
3 inch	29 00	24 50
3½ inch	34 00	25 00
4 inch	43 00	36 00

GALVANIZED SHEETS FIRM AT RECENT REVISIONS

Montreal.

Activity in galvanized sheets still features the local sheet markets, with stocks —while none too heavy—sufficient to take care of immediate requirements. Arrivals from overseas are coming to hand in good quantities, although mills to the south are handicapped in deliveries. Local quotations remain at recent revised levels with a range still noted among distributors. There is, however, practically no sign of price-shading such as was evident in past weeks, stocks at present not permitting this practice. Canada plate bookings for fall requirements will soon commence, causing an extra buying movement in sheets and stocks of these are now arriving. Following are unchanged quotations:

BLACK SHEETS—		
10 gauge, base	4 00	4 50
12 gauge	4 10	4 60
14 gauge	4 20	4 70
16 gauge	4 30	4 80
18-20 gauge	4 55	5 05
22-24 gauge	4 60	5 20
26 gauge	4 65	5 25
28 gauge	4 75	5 35
Sheets, 36" wide, 10c. per 100 lbs. extra.		
GALVANIZED SHEETS—		
Queen's Head—		
28 gauge	6 75	7 25
26 gauge	6 50	7 00
24 gauge	5 90	6 40
22 gauge	5 55	6 05
18-20 gauge	4 85	5 35
Other Brands—		
10¾	6 50	7 00
28 U. S. gauge	6 10	6 60
26 U. S. gauge	5 80	6 30
24 gauge	5 65	6 15
22 gauge	5 65	6 00
16 gauge	5 35	5 85

Theses prices are for full bundles, an extra charge of from 25c to 35c is made for broken lots. Extra for sheets 3 ft. wide, 28 gauge and 10¾ oz., 20 cts. per 100 lbs. Further extra for sheets 4 ft. wide, according to gauge.

TIN PLATE—Coke	
20 x 28 x 100 lb. basis	13 50
20 x 28 IC, 112s	14 00
20 x 28 IX, 112s	16 00
20 x 28 IXX, 56s	9 25
20 x 28 IXXX, 56s	10 00
TERNE— PLATE—	
20 x 28 IC, 112s	14 50
CANADA PLATE—	
Dull, 52s	5 25
Dull 60s	5 35
Blued, 52s	5 50
Blued 60s	5 60
Welsh, polished, 52s	7 25
Welsh, polished, 60s	7 50
Galvanized, 52s	5 50
Galvanized, 60s	8 00

STEEL SITUATION STILL REPORTED STRONG

Montreal.

Underlying factors in the steel industry are still reported firm, and locally quotations are firmly held at $2.95 base. A quotation five cents less is given for ordinary business by a few firms, these having not yet increased prices, as was mostly done a few weeks ago. Although at this season a usual slackening in trade becomes apparent, thus causing an easier tendency, chances of this are thought more remote this year owing to the effects of the coal strike which is now being more keenly felt in markets to the south. Domestic trade, too, has been of a sorting character for the most part during past months, and any easing in demand because of the absence of larger construction work will not be as noticeable. Unchanged price levels are as follows:

IRON & STEEL—	
Common bar iron, 100 lbs.	2 95
Refined iron	4 45
Iron finished machinery steel	3 00
Mild steel	2 95
Single reeled machinery steel	5 05
Band steel	3 30
Spring steel	4 55
Sleighshoe steel	2 95
Tire steel	3 15
Toe calk steel	3 85
Harrow tooth steel	3 10
Mining tooth steel, per lb.	0 20½
Black Diamond tool and cast steel	0 20½

NOTE—Refined iron is approximately $1.50 per 100 lbs. over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs. extra.

FIRMER TONE IN COMPRESSION GOODS

Montreal

The movement of the various lines of valves and bibbs continues in fair proportions with the progress made in construction work. The strength of copper for some time past has a strengthening tendency in the undertone of the market, and improved trade has also assisted towards a firmer basis for these goods. Quotations remain at former discounts, as follows:

Compression work, standard	45%
Fuller work, standard	30%
Quick opening compression bibbs	43%
Bath cocks, quick opening	41%
Bath cocks, compression	41%
Basin cocks, quick opening	46%
Flatway stop and waste cocks, standard	54%
Roundway stop and waste cocks, st'nd'rd	46%
Brass steam cocks, standard, ¼ in.	50%
Radiator valves, standard	58%
Do., removable discs	58%
Globe, angle and check valves, standard	25%
Gate or straightway	25%
Emco globe valves	33%
Emco check valves	33%
Jenkins globe, angle, check and swing check	19%
Jenkins gate or straightway	25%
Jenkins iron body, globe and angle	15%
Jenkins iron body, gate	33%
N.P. "P" and "S" traps	40%

RECESSION IN TIN EASES SOLDER PRICES

Montreal

After continuing on a firmer trend in recent weeks the undertone of solders is now described as a little quieter owing to the easier tone of tin on primary markets. This metal has declined during the past two weeks. Other lines of lead and zinc products remain in a steady position with lead and spelter re-

ported as fairly firm. Demand for these products has shown a slight slackening during the past week or two, but dealers consider this as only a temporary condition maintaining that construction work during the summer should require a fair amount of supplies. Unchanged quotations are the following:

LEAD AND ZINC PRODUCTS—	
Lead pipe, per 100 lbs.	12 00
Lead waste, per 100 lbs.	13 00
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	17½% off.
Lead wool, lb.	0 13½
Lead sheets, 2½ lbs., sq. ft. lb.	0 10
Lead sheets, 3 to 3½ lbs., sq. ft., lb.	0 09¾
Do., 4 to 8 lbs. sq. ft., lb.	0 09
Cut sheets, ¼c. lb. extra and cut sheets to size, ¾c. lb. extra.	
Solder, guaranteed, lb.	0 26½
Do., strictly, lb.	0 24½
Do., commercial, lb.	0 21½
Do., wiping, lb.	0 22½
Do., wire, lb.	0 35
Zinc, sheets, casks	0 11
Do., broken lots	0 11½

SOIL PIPE MARKET STEADY TO FIRM

Montreal.

Soil pipe and fittings continue in seasonal demand with the extensive building operations demanding supplies. Quotations remain at former discounts with the tone of the market described as steady to firm, owing to the strength of pig iron and other raw materials. The trend of the market for these products, as pointed out by a local manufacturer, has not shown the advance that has been evident in many other lines of iron and steel. The revision of last month brought current quotations to a higher level, but previous to this prices were very low. However, for the present there is said to be no indication of a further price revision and following are prevailing discounts:

SOIL PIPE—	
2 and 3 inch	40%
4 inch	45%
5 and 6 inch	40%
8 inch	20%
Fittings—	
2 to 6 inch	50%
8 inch	20%

INGOT METAL PRICES NOW MARKING TIME

Montreal.

Ingot metals are reported quiet with prices generally marking time, or in one or two cases slightly easier. There is said to be no weakness to this situation, but merely a dull period which is not unusual at this time of year.

TIN.—The variation in this metal has been so slight as to be almost negligible and London is evidently waiting further movement from this side. Demand continues light and with stocks as large as they are, there seems little prospect of any advance in price. Local quotation, 35½ cents.

COPPER.—This metal has been slightly easier in New York although there is said to be no pressure to sell and producers are apparently confident of better prices later on. Export business is well maintained and domestic consumption continues at a good rate. Electro is quoted at 17¾ cts., casting at 17½ cts.

LEAD.—The American market is reported quiet with prices slightly below the top figure touched several weeks ago. The situation is gradually becoming easier, and lower prices would not be surprising. Locally the market is fairly firm with refined lead catching a price almost as high as virgin. Market quoted at 6¾ cts.

SPELTER.—Spelter is quoted slightly lower at East St. Louis, but mostly by second hands as producers are still quite firm in their ideas. This metal is probably in as strong a position as any, as Europe has none too much available and supplies are barely up to normal in the U. S. A. Locally demand is fairly good with the market steady at 8 cents.

ANTIMONY.—This metal is somewhat easier in New York owing to heavier supplies and the local market is weaker in sympathy at 7½ cts. for high grade English and 6½ cts. for Chinese.

ALUMINUM.—There is practically no change in aluminum which remains dull on the local market at 24 cents.

Toronto Markets

TORONTO, June 28.—A variety of pending price developments is noted on the current sanitary and heating markets. Galvanized sinks and wash boilers show a reduction of 17½ per cent., together with numerous other galvanized wares. Prices on stove pipe and stove pipe elbows are reduced five and ten per cent. respectively, while to those interested, coach or lag screws, tire and stove bolts, as well as carriage and machine bolts and nuts appear with a reduction of around ten per cent. Through revised discounts, small iron rivets and burrs cost more. Rising material costs are reflected by the firming up in radiator prices, the revised levels being described as firm with an improved trade outlook.

To eliminate shading on enameled ware products and maintain current quotations on a uniform basis is stated to be the objective of distributors, but although a fairly brisk call is noted, competition remains keen.

GALVANIZED SINKS AND WASH BOILERS REDUCED

Toronto

A reduction of approximately 17½ per cent. has been announced on practically all galvanized ware products such as galvanized tubs, pails, oil tanks, sinks, wash boilers, garbage cans, and sap buckets. These items were previously quoted at net list.

PRICES REDUCED ON STOVE PIPE AND ELBOWS

Toronto.

Stove pipe and elbows record a decline in prices through the issuing of new discounts on these products. Stove pipe elbows, both black and galvanized are now quoted at list less 10 per cent., while stove pipe has a discount of five per cent. off. Formerly these quotations were net list.

SMALL IRON RIVETS AND BURRS ADVANCED

Toronto.

An upward revision in quotations has been made on small iron rivets and burrs, the new discount level being 47½ per cent. off, compared with the previous price of 52½ off.

COACH SCREW AND BOLT PRICES HIGHER

Toronto

To those interested a new discount sheet has been issued covering carriage and machine bolts and nuts, as well as miscellaneous bolts, tire and stove bolts, coach or lag screws, etc. Quotations all through the list are advanced approximately ten per cent.

FREIGHT RATE CUT TO LOWER CEMENT PRICES

Toronto.

Chief interest in cement markets at this time centres around the proposed reduction of freight rates on Canadian railroads, a development which, if materialized, would undoubtedly tend to ease quotations on cement in the near future. One market report indicated a reduction of ten cents per barrel, but in discussing this situation with manufacturers, Sanitary Engineer was informed that no definite decision had yet been made in this regard. It was admitted, however, that the announcement of actual reductions in transportation costs should result in a consequent proportionate decline in cement prices. Prevailing demand for this product is stated to be fairly good, construction activities in the city being up to expectations, but the call for cement in the country is just moderate. Prevailing unchanged levels follow:

CEMENT—	Toronto.
Car load lots.	
Per barrel, delivered	$3.75
Less car lots.	
Per barrel, f.o.b. yard	4 40
Per barrel, delivered	4 60

Single bags, $1.15 each; 4 bags to barrel.
Extra charge of $1.50 per load on less than 24 bag lots.
Rebate of 20 cents for empty sacks.

POSSIBLE ADVANCE IN FURNACE COSTS RUMORED

Toronto.

Certain rumors have recently been in evidence regarding advanced prices on furnaces for the fall and winter trade.

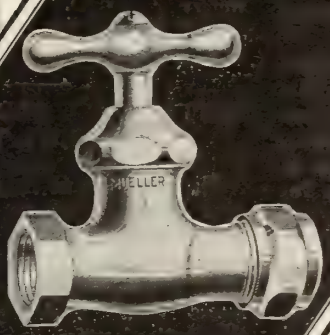
(Continued on page 36)

MUELLER

Compression Stop Cocks

Beauty of design—freedom from sharp angles and creases—and the ease with which they can be kept clean—make MUELLER Compression Stop Cocks especially desirable for residence plumbing.

The well-known MUELLER quality of materials and workmanship insures that dependable service which builds reputation for the wise plumber.



Each MUELLER Cock is tested to withstand 200 pounds hydraulic pressure—and is fully warranted.

The four Cocks here shown are a few of the many MUELLER patterns—all designed to meet specific requirements.

Write today for detailed information and prices. Mail orders given immediate attention.

H. Mueller Mfg. Co., Ltd.,
Sarnia, Ont.

Water, Plumbing and Gas Brass Goods and Tools

American Factory at Decatur, Illinois, U. S. A.

Branches, New York and San Francisco

Mueller Metals Co., Port Huron, Mich., Makers of "Red Tip" Brass Rod; Brass and Copper Tubing; Forgings and Castings in Brass, Bronze and Aluminum; Die Castings in White Metal and Aluminum; also Screw Machined Products.

TORONTO MARKETS

(Continued from page 34)

While no authentic confirmation or denial of such a change has been received, yet it is noticeable that the general tendency in all metal goods has been to increase prices, and with the cost of pig iron and sheets and plates recording two or three advances, a similar development in furnace quotations would not be surprising, according to opinions expressed on the subject to Sanitary Engineer. A local furnace manufacturer stated that nothing definite in this respect has been decided upon, although it was pointed out that certain raw material costs were now on a higher level than formerly. The natural outcome of this situation was to create firm market conditions for future trade.

TO ELIMINATE SHADING ON ENAMELED WARES

Toronto

Owing to activity in building circles there continues to be in evidence at this season a fairly brisk call for enamelled ware products. Competition, however, between the various supply houses is described as very keen, with the result that some unsettlement has crept into the market, owing to rumors of extra discounts having been offered for quantity purchases. This situation is showing some improvement during recent weeks, owing to the fact that distributors cannot afford to absorb the extra sales tax, give extra discounts to larger buyers, and at the same time turn over goods at a profit. Therefore, the maintenance of uniform price levels is stated as the object to be secured, should any 'movement materialize towards firming up on the following current quotations:

ENAMELED WARE—

Enameled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.	51 40
Do., 5½ ft.	57 10
Lavatories—	
17x10" Apron F139 or P4045	15 30
18x24" Apron F154 or P3845 or P3847	23 60
18x21" Apron F169 or P4205	17 60
18x21" Roll Rim, F197, F199 or P4655-6	15 40
17x19" Roll Rim, F241 or P4345	12 60
Sinks, Roll Rim, 16x24 in.	18 10
Do., 18 x 30 in.	23 00
Do., 20 x 30 in.	24 70

Sinks, Flat Rim—	3 only	2 only	1 only
16x24	$7 60	$7 70	$7 80
18x30	8 50	8 60	8 70
20x30	9 70	9 80	9 90

Above prices, list, less 33 1-3 per cent.

All steel enamel baths, 4 and 4½ ft.	$14 00
Do., 5 ft.	15 00
Do., 5½ ft.	16 75

Steel bath quotations are net.

RISING MATERIAL COSTS FIRM RADIATOR PRICES

Toronto

Due to the increased prices on coke, pig iron and other foundry materials, the situation in radiators and boilers has now firmed up considerably, and added to strength in the raw product markets is the brisk seasonal demand for these goods. As pointed out in the last issue of Sanitary Engineer, the extra discounts which were being quoted on radiators and boilers respectively, have now been withdrawn, this amounting to a technical advance in prices. The current situation is described as very firm by manufacturers and distributors, many buildings now reaching the stage where heating installation is required, while construction pragrams show evidence of being continued in general volume during the ensuing months. Following are the prevailing local list prices and discounts:

RADIATORS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60.

Discount on 2, 3, 4 and 5 column standard sizes, 59% for water and 60% for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 51% for water and 52% for steam.

Discounts on 1-column hospital size, water 33%; steam 34%.

Wall radiators—5 ft. $1.15; 6 ft. $1.10; 7 ft. $1.05; 9 ft. $1.05; 12 ft., $1.05. Discount 56%.

BOILERS—

Water:
Round 64% off list. Square 15%. off list.
Steam:
Round 28% off list; Square 15%. off list.

BETTER CALL FOR PIPE FITTINGS; PRICES STEADY

Toronto.

Since there has been a better call for pipe fittings, due to the increased activity in building circles, it is noticeable that discount levels have been decidedly more steady. Quotations on these products remain unchanged, the issuing of the revised price list with discounts on malleable fittings, constituting the last change with these levels still in effect. As indicated above, current trade is now on a more satisfactory basis, and while this condition is more or less seasonal, the improvement in trade circles is evident. Following are prevailing quotations:

PIPE FITTINGS—	Per cent.
Cast iron fittings	30
Plugs, cast iron	30
Do., solid	30
Do., countersunk	30
Bushings, malle.	32
Do., cast	32
Unions, ¼ in. to 2 in.	47
Do., ⅛ in., 2¼ to 4 in.	47
Flanged unions, std.	30
Flanged fittings	30
Dart unions, blk., ¼ to 2 in.	33½
Do., ⅛ in., 2¼ to 4 in.	23
Do., galvd., add to black	30
Nipples, blk., and galvd. ⅛ to 4 in. close and short	60
Do., 4½ in. and larger	50
Do., long, ⅛ in. to 4 in.	65
Do., 4½ in. and larger	55
Do., running thread	40
Couplings, 4 in. and under	30
Do., 4½ in. and larger	10

MALLEABLE FITTINGS—

New piece list, effective June 1, 1922. Discounts, 70 and 5 per cent.

TRADING IN CLOSETS BRINGS FIRMER MARKET

Toronto.

While conditions in the market for closet outfits and fixtures are described as good, distributors realize that this is the result of seasonal trade in these products, combined with the reflection of current construction programs. The recent easing of nominal quotations on these products has resulted in the development of a slightly better feeling, both as regards the volume of business and the maintenance of uniform price levels. Rumors of shading for quantity purchases, however, still persist, but a revision in this direction is looked for in the near future as raw materials are now higher in price, while the limited season for the building trades technically places available supplies on a firm market footing. The following quotations on closet combinations are stated to be the average levels in effect on the local market:

CLOSET COMBINATIONS, low down	each
Closet, standard outfit, oak	26 00
Do., with post hinge seat	26 50
Do., mahogany Vitro or Pussyfoot with mahogany post hinge seat and cover	28 75
Do., vitreous china, with oak post hinge seat and cover	28 75
Do., vitreous china, with mahogany post hinge seat and cover	29 00
Do., white Vitro or Pussyfoot, with oak post hinge seat and cover	28 75
Do., white Vitro or Pussyfoot with mahogany post hinge, seat and cover	29 00
Do., enamelled iron tank with oak post hinge seat and cover	28 75
Do., enamelled iron tank with mahogany post hinge seat and cover	29 00
Additions or reductions to above:	
Add for reverse trap bowl	1 50
Add for syphon jet bowl	7 00
For ⅜ in. valve on supply pipe	1 50
Deduct for supply pipe	0 60
Deduct for floor flange and bolts	0 60
CLOSET BOWLS—	
Washdown bowl less spud	10 00
Reverse trap bowl, less spud	12 10
Syphon jet bowl, less spud	17 00
"Richelieu" bowl	10 50
CLOSET TANKS, low down or Pussyfoot tank, with fittings, less seat	13 10
White Vitro or Pussyfoot tank with fittings, flush elbow and supply	15 65
Vitreous china tank with fittings, flush elbow and supply	18 00
Enamelled iron tank with fittings, flush elbow and supply	18 00
CLOSET SEATS—	
Oak post hinge seat and cover	4 15
Oak wood strip seat and cover	3 50
Mahogany finish post hinge seat and cover	4 35

GOOD TRADE IN BRASS AND COPPER PRODUCTS

Toronto

While conditions in the virgin metal markets have recently recorded a lull in both price and consumer interest, this development has not been reflected in the market for finished copper and brass products such as sheets, rods and tubing, a firm trend being evident. The demand for these goods is stated by distributors and manufacturers to be keeping up well, and current trade conditions are described as satisfactory for this season. There has been no change in price announced, prevailing levels remaining at the higher levels quoted a few weeks ago. These quotations follow:

BRASS—	
Sheets base, per lb.	0 22
Rods, base, per lb.	0 19
Tubing, base, per lb.	0 25
COPPER—	
Rods, base, per lb.	0 28
Soft sheets, plain, 1 oz. and heavier, lb.	0 29
Do., plain tinned, 16 oz. and heavier, per lb.	0 36
Do., polished, and tinned, 16 oz. and heavier, lb.	0 41
Tubing	0 29

BOILER TUBE BUSINESS IN SEASONAL VOLUME

Toronto.

While boiler tube prices continue to remain on a nominal basis as far as the

(Continued on page 38)

Do the Pipe Fittings you now use give you real satisfaction?

We realize that one of the greatest problems a plumber and steamfitter has is that of obtaining Pipe Fittings that will be a fitting climax to a job that he is otherwise proud of.

Consequently we are at your service in offering **I.M.I. PIPE FITTINGS.**

Our **Cast Iron Pipe Fittings** are made with iron of high tensile strength—proper proportions and correct tappings.

Our **Malleable Fittings** are made of **Air Furnace Refined Iron** reamed and tapped to gauge with perfect threads.

Guaranteed to be of High Quality and they will give complete satisfaction.

We have a complete line of both flanged and threaded fittings from 1/8 inch up. Deliveries can be made from stock both standard and extra heavy.

Insist on getting *"the brand that has the quality"* from your jobber.

International Malleable Iron Co., Limited

Guelph, Ontario, Canada

TORONTO MARKETS

(Continued from page 36)

local market is concerned, no change from the previous list has been announced, and distributors state that current business is fair for this season of the year. Trading, however, is in small lots, a condition which is described as usually evident at this time. Up to the present, tubes have not reflected the firmer attitude of the steel industry generally, a development which has been observed in practically all other steel lines. This factor is attributed to the quiet demand, combined with the size of stocks on hand. Following are the average nominal local price levels:

BOILER TUBES—

	Seamless	Lapweld
1 inch	18 00	.....
1-¼ inch	20 00	.....
1-½ inch	19 00	.....
1-¾ inch	20 00	.....
2 inch	19 00	16 00
2-¼ inch	22 00	19 00
2-½ inch	25 00	19 00
3 inch	29 00	24 00
3-½ inch	34 00	26 80
4 inch	43 00	34 25

LULL IN DEMAND FOR TIN PLATES

Toronto

While the tin plate markets are reported quite steady at the recent new price levels, the demand for these products is described as experiencing a lull, as it is considered that most large consumers are comfortably taken care of for the time being. Many buyers of tin plate are stated to have anticipated their requirements in this direction, chiefly on account of the coal strike, and the fear of delayed deliveries. On the other hand, it is pointed out that there is usually a lull at this season of the year. Competition from the Welsh tin plate mills is becoming a more important factor in this market, and in this connection it is noted that quotations are now considerably easier than the levels which prevailed during the spring. Average local prices follow:

PLATES, CANADA—	Per box
Dull, 60 sheets	4 85
Ordinary, 52 sheets	4 75
Blued and oiled, boxes 52's	5 00
Do., boxes 60's	5 10
PLATES, COKE TIN—	
IC, 20 x 28, 112 sheets	12 50
IX, 20 x 28, 112 sheets	16 00
IX, 20 x 28, 56 sheets	8 50
PLATES, CHARCOAL TIN—	
IX, 20 x 28, 112 sheets	10 00
IXX%, 20 x 28, 56 sheets	12 00
PLATES, TERNE—	
10 x 14 x 20, 112 sheets	11 50

STEADY TONE RECORDED IN SOIL PIPE MARKET

Toronto.

A brisk demand for soil pipe and fittings is generally reported as evident, building activities at this season of the year, contributing to the larger volume of trade in these products. Quotations on both pipe and fittings are described as steady, with little change anticipated on local centres, according to distributors, owing to such elements as coke and pig iron having recently been increased in price, which factors enter into the production costs of soil pipe. The recent revision in discounts on eastern distributing centres, now brings quotations on a more uniform level, with the following unchanged prices in effect locally:

SOIL PIPE—

2 inch	40 per cent.
3 inch	40 per cent.
4 inch	40-5 per cent.
5 and 6 inch	40 per cent.
8 inch	net

FITTINGS—

2 to 6 inch	50|5 per cent.
8 inch	net

STRENGTH MAINTAINED IN WROUGHT PIPING

Toronto.

The wrought pipe market is still described as strong, and while the recent revision in the budget reduces the tariff to some extent on imported piping, distributors state that this condition has not materially changed the prevailing tone. The current demand is very favorable, and in discussing future prices, it was stated that there was hardly likely to be any reduction, as small sizes are experiencing a very brisk movement due to the requirements of buildings now under construction. Under these circumstances deliveries are getting more extended, which, combined with the fact that warehouse stocks have been drawn upon somewhat heavily during recent weeks, has resulted in a strong tone pervading the market. List No. 54, continues to govern current selling prices:

WROUGHT PIPE

Price List No. 54. December 22, 1921.

Standard Buttweld Pipe S/C

Size	Steel Blk.	Steel Galv.	Gen. Wrot. Iron Blk.	Gen. Wrot. Iron Galv.
⅛ in.	$6 00	$ 8 00	$	$ ....
¼ in.	3 84	5 94	7 20	9 30
⅜ in.	3 84	5 94	7 20	9 30
½ in.	4 85	6 46	7 31	8 93
¾ in.	5 87	7 71	8 86	10 70
1 in.	8 16	11 05	12 58	15 30
1¼ in.	11 04	14 95	17 02	20 70
1½ in.	13 20	17 88	20 35	24 75
2 in.	17 76	24 05	27 38	33 30
2½ in.	28 08	38 03	.....	.....
3 in.	36 72	49 73	.....	.....
3½ in.	47 84	63 48	.....	.....
4 in.	56 68	75 21	.....	.....

Standard Lapweld Pipe S/C

Per 100 feet.

Size.	Steel Blk.	Steel Galv.	Gen. Wrot. Iron Blk.	Gen. Wrot. Iron Galv.
2 in.	$21 46	$27,38	$31,08	$37 00
2½ in.	31.50	40 05	46 80	56 16
3 in.	41 31	53 55	61 20	73 44
3½ in.	48 76	65 32	72 68	89 24
4 in.	57 77	77 39	86 11	105 73
4½ in.	66 04	86 36	1 04	1 24
5 in.	76 96	100 64	1 21	1 45
6 in.	1 00	1 31	1 57	1 88
7 in.	1 33	1 76	2 02	2 45
8L in.	1 40	1 85	2 13	2 58
8 in.	1 61	2 13	2 45	2 97
9 in.	1 97	2 59	2 97	3 59
10L in.	1 82	2 40	2 75	3 33
10 in.	2 35	3 09	3 54	4 28

RANGE BOILER TRADE MORE SATISFACTORY

Toronto.

Current trade in range boilers is more or less of a spotty character, according to the recent reports from manufacturers and distributors of these products. Business in some quarters is still described as spasmodic, a condition which was generally apparent during the earlier months. Other dealers state that trade is of a fairly moderate nature, which can be looked upon as more satisfactory, especially in view of the quiet session previously experienced in range boilers. Quotations remain unchanged, manufacturers pointing out that recent higher costs of raw materials such as sheets, have served to steady prices. The prevailing list and discount follows:

RANGE BOILERS—

Size.	List Price.
5-gallon	$13 50
12 to 15 gallon	14 00
18-gallon	15 00
25-gallon	16 50
30-gallon	17 50
35-gallon	20 50
40-gallon	22 75
52-gallon	38 00
66-gallon	60 75
82-gallon	74 00
100-gallon	103 00
120-gallon	117 00
144-gallon	164 00
168-gallon	187 00
192-gallon	210 00

Discounts, Standard weight, 50 per cent.
Extra heavy, 40 per cent.

REACTION APPEARING IN SCRAP MATERIALS

Toronto.

Trade in scrap materials is now described as spasmodic, the current demand recording some variation, dealers stating that every few days is a period unto itself from a trading viewpoint. Little change in prices has been apparent, for while the recently revised levels continue in effect, the undertone is perhaps not quite so firm as during recent weeks. Iron and steel scrap remains firm but with no further development in quotations. The railroads are offering large quantities and until this material is taken off the market, there is little likelihood of any advance. There is considerably more heavy melting steel on the market than has been the case for some little time and this also has a tendency to depress prices. Steel turnings and cast iron borings have been fairly active. Following are the usual averages of dealers' local buying prices:

SCRAP MATERIALS—

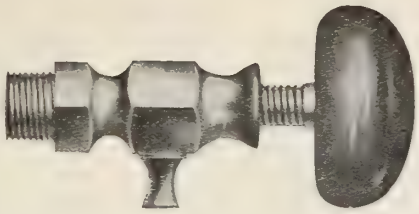
Scrap Iron		
Gross Tons—		
Heavy melting steel (Hamilton)	$13 00	$14 00
Borings and turnings	6 00	7 00
Rerolling rails	12 00	13 00
Scrap pipe	5 00	6 00
No. 1 railroad wrought	10 25	11 25
Steel turnings (Hamilton)	9 75	10 25
Agricultural malleable	12 00	13 00
Railroad malleable	13 00	14 00
Net tons—		
No. 1 cast	18 00	19 00
Stove plate	15 00	16 00
Grate bars	14 00	15 00
Standard car wheels	15 00	16 00
Scrap Metals		
Heavy copper and wire	10 50	11 50
Light copper	9 00	9 50
No. 1 composition	9 00	9 50
No. 1 comp. turnings	7 25	7 50
Light brass	3 50	4 50
Heavy yellow brass	5 50	6 50
Heavy Lead	5 00	5 25
Tea lead	2 75	3 50
Scrap zinc	4 25	4 50
Scrap Rubber.		
Boots and shoes	2 25	2 50
Lumbermen's rubber boots	1 50	1 75
Auto tires	0 50	0 60
Solid tires	0 75	1 25

BRISK SEASONAL CALL FOR TROUGH AND PIPE

Toronto

Eavestrough, conductor pipe and conductor elbows are recorded among products experiencing a brisk seasonal demand, with prices on these lines now

(Continued on page 40)



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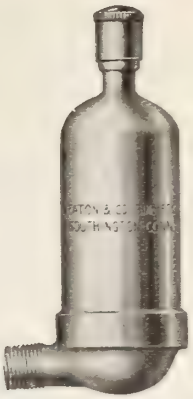

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Fire pots, torches and repair parts for Clayton & Lambert, Bernz, Dangler and Detroit makes.

Rubber goods, ball cock repairs, Stillson, Trimo and Vulcan tools and repairs. Pipe joint cement, N.P. chain, Hack Saw blades.

"B. & C." automatic air valves, lock shield air valves, wood wheel air vents, loose key air vents, floor and ceiling plates.

If our representative has not called on you drop us a card and we'll see that you get to know the C. & H. line. Mail orders given prompt attention and our goods are guaranteed to please.

W. H. Cunningham & Hill, Limited

269 West Richmond Street, Toronto

Why are the

VULCAN

Pure Air Furnaces Superior in Radiation?

because they give off a more satisfactory amount of heat in proportion than any other furnace, on account of the greater total area of radiation surface.

Easy to operate
Profitable to install
Strongly constructed of heavy metal

THE VULCAN CO., LIMITED

London - - Canada

TORONTO MARKETS

(Continued from page 38)

very firm. As is the present case in practically all steel products, the tendency is towards higher quotations in view of the strength apparent in all sections of the steel industry. Coupled with the volume of trade now recorded, the viewpoint has been expressed in some quarters that advances in price on eavestrough and piping in the near future would not occasion much surprise. Up to the present, however, no uniform changes in price have been announced, although certain distributors are slightly revising their prices upward to take care of the sales tax. Average price levels prevail as follows:

TROUGH EAVE—
O. G. Square Bead and half round. Size in girth:

8 in.	15 90
10 in.	17 70
12 in.	21 20
15 in.	28 80
18 in.	36 50

Less 70 and 10 per cent.

PIPE (CONDUCTOR)—
Plain, round or corrugated.

	Per 100 ft. in 10 ft. lengths.
2 in., in 10 ft. lengths, list	18 40
3 in., in 10 ft. lengths, list	2[illegible] 30
4 in., in 10 ft. lengths, list	29 60
5 in., in 10 ft. lengths, list	40 00
6 in., in 10 ft. lengths	49 00

Less 70-10 per cent.

ELBOWS (CONDUCTOR)—

2 inch, list	5 25
3 inch, list	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00

Less 60 per cent.

DELIVERY DOMINATES THE SHEET MARKETS

Toronto

The recent higher price levels on sheet products continue in effect, but while the brisk demand for galvanized sheets is still evident, it is noticeable that this is not generally the case with black sheets, and prices show a range on these products. The new higher quotation of $5.00 base, is described as nominal, and $4.80, as reported in the last issue of Sanitary Engineer has been recorded in several quarters. The question of delivery continues to dominate the steel market. While there is no doubt that buyers have replenished their stocks to some extent in the past three months there are no indications that buyers are over-stocked or will produce a soft market in the near future by liquidation. In many cases stocks merely represent provision for filling orders already in hand.

Some recession in prices on Canada plates has recently developed, but distributors of these goods look for a brisk volume of fall trade, with substantial bookings. Current local quotations follow:

BLUE ANNEALED SHEETS—

10 gauge, base	4 00
12 gauge	4 05
14 gauge	4 10
16 gauge	4 15

BLACK SHEETS—

18-20 gauge	4 60	4 80
22-24	4 65	4 85
26 gauge	4 70	4 90
28 gauge	4 80	5 00

A charge of 25c per 100 lbs. is made for less than case lots. An extra 10c per 100 lbs. is also charged on sheets 26 in. wide.

GALVANIZED—	Queen's Head.	Fleur-de-lis.
28 gauge	7 25	7 00
26 gauge	7 00	6 75
24 gauge	6 40	6 35
22 gauge	6 05	5 90
18 and 20 gauge	5 85	5 75

	Premier and Apollo
10 10¾ oz.	6 40
U. S. 28, base	6 00
U. S. 26	5 70
22 and 24	5 55
18 and 20	5 40
16	5 25
12 and 14	5 10

An extra is now charged on galvanized sheets, 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20 cents per 100 pounds. Other gauges show no change for different widths.

An extra 40 cents per 100 lbs., is charged for Keystone and Premier brands copper-bearing sheets.

BAR PRODUCT TRADE COMING IN FLURRIES

Toronto.

Deliveries of iron and steel continue difficult to secure, this condition serving to retain the strength in the steel markets in spite of keen competition. Distributors state that current trade apparently comes in flurries, demand being brisk for a few days and then falling off again. This week opened in fair volume, however. The base price of $3.00 generally holds good for average purchases on the local market, and while some indication of still higher price levels is expressed in some quarters, yet it is stated that this quotation will likely hold for the next few weeks, although prices may go up another ten or fifteen cents in July or August, if business retains its present indications. It is pointed out, however, that July and August are usually quiet months in this industry, and a recession from the brisk activity in southern primary quarters, is already being recorded. This season, such a tendency is more or less offset by the influence of the coal strike, which is now practically two and one-half months old, with no apparent indication as to when the finish will materialize.

IRON AND STEEL—

Mild steel bars, base	3 00
Mild steel bands, 3 16 in. base	3 50
Bar iron base	3 00
Angle iron base	3 00 — 3 10
Horseshoe iron	3 75
Tire steel	3 25
Spring steel	7 00 — 8 00
Crucible cast sheet steel	28.00
Toe caulk iron	4 00
Hoop steel	4 00
Norway iron	12 50
Sleigh shoe steel	3 00
Mining Drill steel	18.50
Cast tool steel, high grade	30 00
Do., do., Medium	18.00

LEAD PRODUCTS STEADY; VIRGIN METALS QUIETER

Toronto.

The market for lead and zinc products continues to show a moderate tone, with the current call for these products being described by manufacturers and distributors as fair and just about up to expectations at this season A slight reaction has been recorded on the virgin metal markets, and while this movement has not been of sufficient extxent to reflect in prices on the finished products, the change in regard to future prospects detracts somewhat from the firm situation recorded a few weeks ago. No changes have been announced in the local list, quotations remaining as follows:

LEAD AND ZINC GOODS—

Lead pipe, list, per lb.	0 12
Lead, waste pipe, list, per lb.	0 13
Do., over 8 in., list, per lb.	0 14

Lead pipe is subject to a discount of 10 per cent.
Lead traps and bends less, 17½ per cent.
Lead sheets, 4 to 6lbs., sq. ft. in rolls, lb. 0.09
Cut sheets, ½c to ¾c lb. extra and cut sheets to size, 1c lb. extra.

Solder wire, per lb.	0 30
Do., commercial, lb.	0 22½
Do., strictly, lb.	0 21
Do., guaranteed, lb.	0 24
Do., wiping, lb.	0 21
Zinc sheets, per lb.	0 09 — 0 10

DOWNWARD SWING OF PENDULUM IN INGOTS

Toronto.

Slight recessions in price have been generally evident on ingot metals in primary market centres, but little variation is recorded locally. The tone of practically all non-ferrous metals is slightly weaker, a re-action having been recorded from the improvement of recent weeks. This condition is described in some quarters as merely another swing in the pendulum, it having been noted that any attempt towards betterment has usually been followed with a natural recession in both interest and price levels.

COPPER.—The copper market is marking time, a recession in consumer interest now being apparent in both primary and domestic centres. Prices on American and European quarters receded from the higher asking levels recently announced, but no variation was recorded locally. The situation was summed up briefly in the following phases: Europe has no money, but needs copper. The U. S. keeps copper supplies, as they offer no credit. Result, dullness all around. Local quotations remain at 17 cents.

TIN.—A fair demand is evident for tin, but buying is stated to be in small quantities. Dealings in primary tin markets have also been extremely quiet, and little change in the situation is looked for owing to the fact that consumers are reported fairly well covered for immediate requirements. The price of 34 cents continues on the local market.

LEAD.—Lead has re-acted from the firm position noted in recent weeks, this being due to the fact that the demand was unable to keep pace with the offerings. It is described as the natural swing of the pendulum, but although the markets are dull, prices are being fairly well maintained under the circumstances. Local levels unchanged at $7.00.

SPELTER.—This metal is in fair demand at present, but commitments are mostly on small lots. However, local prices are unchanged at $7.25 with producers not very active at present.

ANTIMONY.—Locally, antimony re-

(Continued on page 42)

ELECTRIC WATER HEATER

After looking at other Water Heaters inquire about the Supreme—makers of Gas and Electric Water Heaters.

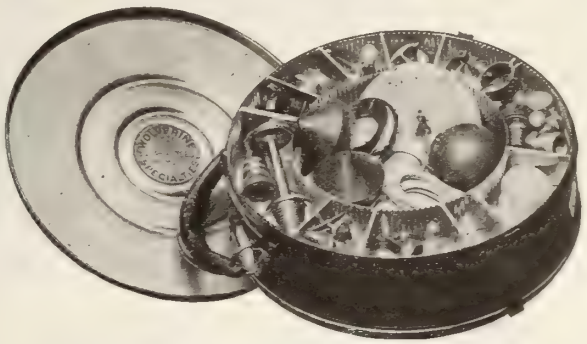
Manufactured by

THE SUPREME WATER HEATER MFG. CO.

1 CARLTON STREET
TORONTO

PATENTED 1921

Wolverine Specialty Case Will Get Your Man In Right When He Lands At The Job



A steel case complete with leather handle—24 small and one large separate and distinct compartment for carrying complete assortment of washers, plugs, tank balls, screws, etc.

Price $7.00 delivered.

Size—Diam., 12 inches—Depth, 4½ inches.

Saves Time---Prevents Material Losses
Increases Sales and Profits

WOLVERINE, LTD.
76 Nelson St., Toronto, Ont.
Forward prepaid.....Specialty Cases.
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Sign and Mail Now—You Need One.

Quality The Beaton and Cadwell Mfg. Co. New Britain, Conn. *Service*

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When You Want an Automatic Air Valve

Choose the Gem No. 4

This automatic air valve is made of the best brass obtainable and is equipped with high-grade carbon. The mechanism is perfect, every valve being guaranteed by us.

Our Ceiling Plate is steadily increasing in popularity partly on account of it being attached to mains and risers at the very last, and is not exposed during completion of a building on the floors. High quality at the right price.

Write for catalogue showing our complete line of specialties.

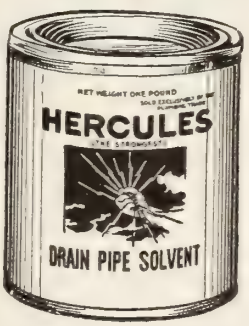
The Beaton & Cadwell Mfg. Co.

NEW BRITAIN, CONN., U. S. A.

Canadian Agents;

J. R. Devereux Co., 233 St. James St., Montreal.

A. E. Hinds & Co., Chamber of Commerce, Winnipeg.



HERCULES

means the Strongest--most Efficient

According to mythology Hercules was the strongest man that ever lived. He was massive in physique and efficient in physical endeavors.

"HERCULES" Drain Pipe Solvent is strong in its own particular way. It will dissolve organic matter and clear stoppages. It is very efficient in this respect and every Sanitary Engineer who has used Hercules knows it to be the best Drain Pipe Solvent on the market. It has no fumes.

Send for a sample can today.

HERCULES CHEMICAL CO., INC.,
440 Washington Street, New York City.

W. H. Cunningham & Hill Limited

269 Richmond St. W., Toronto, Ontario.
Sole Agents for Dominion of Canada.

TORONTO MARKETS

(Continued from page 40)

mains dull, with corresponding reports from primary centres recording the market as quiet without feature. Domestic quotations remain at 6½ to 7 cents.

ALUMINUM.—This market is also quiet, locally, and while some slight improvement was recorded on southern circles due to the call for aluminum from the automobile trades, conditions are again quiet. Prices locally, continue to hover between 20 and 21 cents.

Winnipeg Markets

WINNIPEG, June 28.—The seasonal improvement in current business conditions constitutes one of the feature elements in western plumbing and steam fitting circles. With the increased activity in general building activity now being reflected in various quarters, building supplies in the sanitary and heating line record a proportionate improvement. Price changes are few, but pending developments attract keen interest.

FIRM TONE ON SOIL PIPE & FITTINGS

Winnipeg.

Quotations on soil pipe and fittings still remain at the levels recently prevailing, with no variation having been recorded. An increase in price was looked for in some quarters owing to the strong element noted through higher costs on such raw material as pig iron and coke. Up to the time of going to press, however, the following levels were in effect locally:

SOIL PIPE—

2 and 3 in.	27½%
4 in.	37½%
5 and 6 in.	32½%
8 in.	10% adv.

SOIL PIPE FITTINGS—

2 and 3 in.	47½%
4, 5 and 6 in.	50%
8 in.	10% adv.

IMPROVEMENT IN LEAD AND ZINC PRODUCTS

Winnipeg.

Manufacturers state that business in lead and zinc goods shows a marked improvement over that recorded during the past few weeks. No change has been announced in quotations, but prevailing price levels are described as firm.

LEAD AND ZINC—

Lead pipe	$11.61 per 100 lb.
Lead waste	12.51 per 100 lb.
Lead traps and bends	12½%
Lead sheets, in rolls	10¼c. lb.
Do., less	11c. lb.
Solder, ½ and ½case lots	26c. lb.
Do., less	27c. lb.
Do., wiping, cases	25c. lb.
Less than cases	25c. lb.
Zinc	13c. lb.

QUIET CONDITION EVIDENT IN BOILER TUBES

Winnipeg.

Boiler tubes are still classed among those products exhibiting a quiet attitude. This is due to the lack of large requirements for tubing, while stocks are described as being in a condition not conducive to a steady market. Some competition also exists for prevailing business, rendering quotations more or less nominal.

IMPROVED DEMAND FOR COMPRESSION GOODS

Winnipeg.

A better demand for brass compression goods has been recorded with the increase in general building activity Quotations have remained steady during recent weeks, this being attributed to the current movement combined with firmness in virgin metals. Current discount levels follow:

VALVES—

Compression work, standard	40% & 50%
Fuller Work, Standard	30%
Bath cocks, compression	41%
Bath cocks, quick opening	41%
Basin cocks, compression	30%
Basin cocks, quick opening	45%
Brass steam cocks	35%

FIRM MARKET NOTED IN WROUGHT PIPING

Winnipeg

Current business in wrought piping is described by distributors as registering a distinct improvement, with trade now comparing favorably with the volume of business recorded last year. With an improvement also evident in basic market conditions, prices have remained generally firm.

BLACK PIPE

F.O.B.	Winnipeg	Calgary, Edmonton, Lethbridge & Medicine Hat.	Saskatoon. Regina.		
LIST NO. 54.					
⅛	$ 6 25	$ 0 28	$ 0 20	$ 0 17	$ 0 11
¼	4 52	0 47	0 34	0 30	0 19
⅜	4 67	0 62	0 45	0 40	0 26
½	5 95	0 94	0 67	0 59	0 38
¾	7 20	1 25	0 90	0 79	0 51
1	10 04	1 85	1 34	1 17	0 75
1¼	13 60	2 51	1 80	1 57	1 00
1½	[illegible]	[illegible]	[illegible]	[illegible]	1 21
2	21 88	4 04	2 88	2 52	1 62
2½	34 61	6 40	4 60	4 02	2 68
3	45 26	8 38	6 03	5 28	3 39
3½	58 88	10 12	7 20	6 30	4 05
4	69 75	11 97	8 53	7 46	4 80
4½	81 22	13 91	10 04	8 75	5 62
5	94 73	16 30	11 60	10 15	6 52
6	122 86	21 10	15 00	13 14	8 44
7	181 18	26 14	18 62	16 28	10 46
8L	190 38	27 50	20 00	17 50	11 25
9	267 05	37 60	26 96	23 59	15 16
10L	248 00	35 20	25 60	22 40	14 40

GALVANIZED PIPE

⅛	$ 8 50	$ 0 28	$ 0 20	$ 0 17	$ 0 11
¼	7 04	0 47	0 34	0 30	0 19
⅜	7 09	0 62	0 45	0 40	0 26
½	7 89	0 94	0 67	0 59	0 38
¾	9 41	1 25	0 90	0 79	0 51
1	13 50	1 85	1 34	1 17	0 75
1¼	18 29	2 51	1 80	1 57	1 00
1½	21 87	3 01	2 15	1 88	1 21
2	29 43	4 04	2 88	2 52	1 62
2½	46 54	6 40	4 60	4 02	2 68
3	60 86	8 38	6 03	5 28	3 39
3½	77 65	10 12	7 20	6 30	4 05
4	92 00	11 97	8 53	7 46	4 80
4½	105 60	13 91	10 04	8 75	5 62
5	123 15	16 30	11 60	10 15	6 52
¼	$ 8 50	$ 0 28	$ 0 20	$ 0 17	$ 0 11
6	159 70	21 10	15 00	13 14	8 44
7	[illegible]	26 14	18 62	16 28	10 45
8	[illegible]	27 50	20 00	17 50	11 22

WHEN CHEAP PLUMBING IS DEAR

(Continued from page 14)

stand why plumbing by-laws dealt with new work only. We know that the city council is anxious to make this a healthy city. Epidemics are costly. They excite the people and give a city a bad name. But when one sees sheet galvanized rain-water pipe, inside a dwelling house, often with seams and joints not airtight, conveying air from a drain or sewer (when outside atmospheric conditions permit) one is inclined to think that the science of plumbing is a lost art, or that we are marching backwards.

My experience is that cheap plumbing is often very dear plumbing. The capital city of this Dominion should have plumbing by laws that are faultless, owing to the fact that we have ladies and gentlemen at the head of affairs here upon whom the whole of the country is depending. Its by-laws should be so that no visitor need hesitate to sleep in a private residence, hotel or boarding house for fear of the air of his room being made impure by drain air.

As I remarked in my book, "Our Homes," there is drain air that is not offensive to the organs of smell. As a matter of fact, I have experienced it otherwise when in the execution of my duties. But the same is most injurious to the blood. Finally, I would say, good plumbing is far more important to a man and his family than costly furniture or silverware.

(Signed) J. KINGSTON

MEETING TO-DAY'S PROBLEMS

(Continued from page 23)

ciate your business and the confidence you are placing in us by asking us for a figure but we do not want to lose that confidence by cheapening our service to you any more than do we want to destroy our reputation and lower our standard of work. We, of course, want to work for you, but we would rather lose this business and be not afraid of meeting you on the street than to take your work cheaper knowing, as you and I must, that either you must lose on the class of work done or else I must lose by not receiving a fair return for my work. In the final analysis it is tempting me to dishonesty, because having given my profit away I must still live and having become careless with my work, my reputation, and my good intentions.

I have written the above as a conversation might occur rather than to boil it down to plain statements without repetition and I will continue to write and talk, as long as the strength is in me in the hope that those who are addicted to the habit of price cutting may change their ways. The fellow who does business on a price cutting basis and persists in thinking he is a business man should be cooped up or at least brought in out of the rain. If such a qualification would admit one to the insane asylum then as Sir Harry Lauder says: "There would be a lot of homes without a father."

"FIX IT WITH RAWLPLUGS"

THIS DEVICE IS INVALUABLE TO ANY SANITARY ENGINEER WHO TAKES PRIDE IN TURNING OUT SUCCESSFUL WORK.

PROMINENT USERS OF "RAWLPLUGS"

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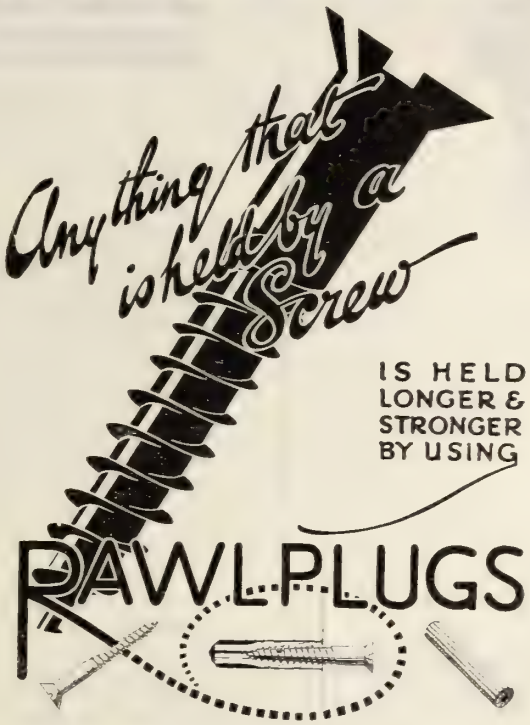

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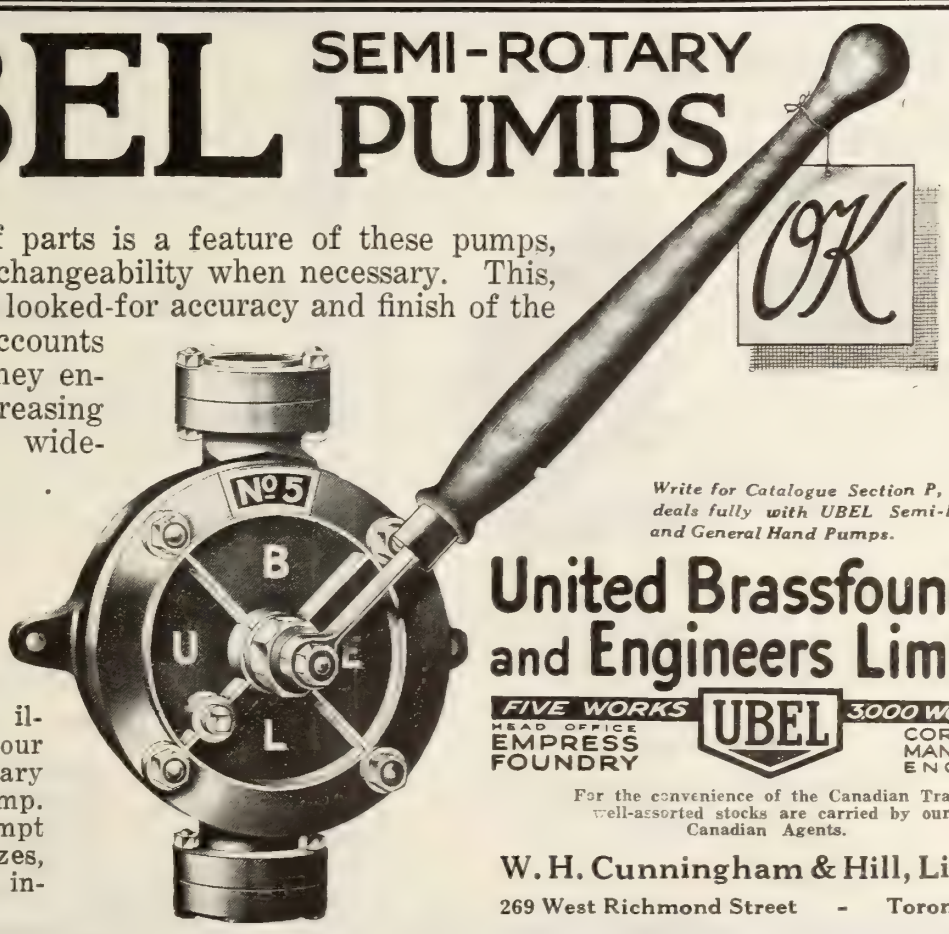
DOMINION ENGINEERING AGENCY, LTD., 24 Adelaide St. East, Toronto.

THEY ARE REAL BUSINESS BUILDERS

UBEL SEMI-ROTARY PUMPS

Standardization of parts is a feature of these pumps, guaranteeing interchangeability when necessary. This, combined with the looked-for accuracy and finish of the UBEL product, accounts for the fact that they enjoy an ever-increasing popularity and widespread demand.



The accompanying illustration shows our Fig. P 1 Semi-Rotary Double-Acting Pump. We can give prompt shipment of all sizes, from ½ in. to 3 in. inclusive.

Write for Catalogue Section P, which deals fully with UBEL Semi-Rotary and General Hand Pumps.

United Brassfounders and Engineers Limited

FIVE WORKS HEAD OFFICE EMPRESS FOUNDRY — UBEL — 3000 WORKERS CORNBROOK MANCHESTER ENGLAND

For the convenience of the Canadian Trade well-assorted stocks are carried by our Canadian Agents.

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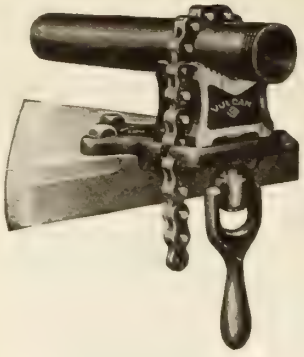

AMONG a plumber's best friends are his tools and, among his tools, many a plumber claims Williams' "Vulcan" Chain Pipe Vise as his best friend.

It's the ***only*** Pipe Vise made entirely of wrought steel. 3 sizes for ⅛ to 8 in. pipe.

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"The Drop-Forging People"

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Automatic Gas Water Heater

PAYS THE PLUMBER A GENEROUS PROFIT

You get a liberal discount on the heater itself and make a good profit on the installation. The Royal Automatic is one compact unit—easily installed anywhere in quick time. No trouble—keeps a supply of piping hot water ever ready in the storage tank. No coils—never limes nor clogs up. Free from fumes. Just the perfect, convenient, efficient water heater that makes lasting friends for you and builds up your business.

Sold only by or through plumbers.

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The Everlasting Veneer Toilet Seat

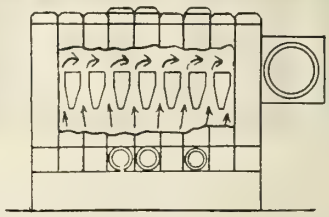
Strong, Clean Hygienic

This reliable, dependable toilet seat is made of 7 and 9-ply, air-seasoned wood veneer, held together by our special wood cement. This cement is proof against heat, cold or dampness. The veneering is distributed according to the strain and wear required of the different parts. The Everlasting Seat will never crack, warp or split.

It is a splendid seat for use in cold, damp basements where closets must be installed. The Everlasting Toilet Seat will meet, and successfully resist these severe conditions of moisture, changing temperature, etc.

Canadian Veneering Company, Incorporated

Action Vale Quebec



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Many sectional boilers, you know, are made with one flue opening at the **rear** of the fire box. This draws the fire to the rear, leaving the front sections but partially effective.

In Burnham Boilers the flue openings are between **each** section, so that an equal amount of heat continually reaches each section.

Write for complete information.

Lord & Burnham Co. Limited of Canada

(BOILER DEPARTMENT)

Harbor Com. Bldg., Toronto.

Burnham Cosy Comfort Heat

Factory — St. Catharines, Ontario.

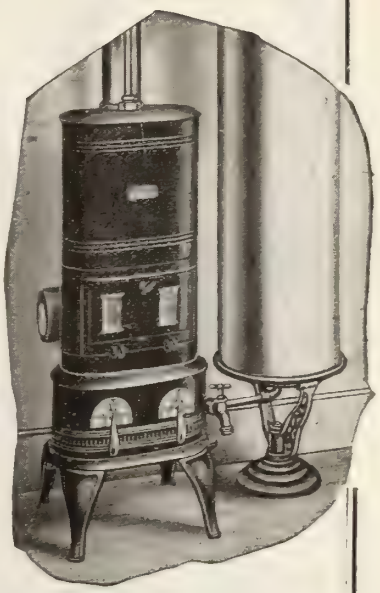
And Now the Rural Home May Have a Supply of Hot Water

McClary's FLORENCE OIL WATER HEATER is specially designed for homes where a gas supply is not available. It is an independent unit and can be installed anywhere. It is simple in operation, economical in fuel consumption and will heat water for washing in 10 minutes and for bathing in 40 minutes.

A display of the FLORENCE will create sales for you.

McClary's Gas Water Heater, shown in the illustration, is substantially built, and among other features has a DOUBLE COIL OF COPPER. Results guaranteed.

Our nearest warehouse can supply your requirements.



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Porcelain Enamel Ware

—Your Guarantee of Quality—

Beaver Brand Enamelware by its ability to meet the highest demands for service under all conditions, has established itself in the confidence of the public to such an extent that each month witnesses an ever-increasing demand for products of Beaver manu facture.

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Cheap lockers are not really cheap—they only look that way—Dennisteel is truly economical.

Write for folders

DENNISTEEL LOCKERS

THE DENNIS WIRE AND IRON WORKS CO. LIMITED

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New Prices on

TORONTO Gendron CANADA

Bathroom Fittings and Hardware Specialties

We are glad to be able to announce to the trade a general reduction in prices of our Bathroom Fittings and Hardware Specialties Lines.

The Trying Times of High Prices in these lines is over!

Gendron prices are down to rock-bottom. Write to-day and get our new price lists.

The Gendron Mfg. Co., Limited

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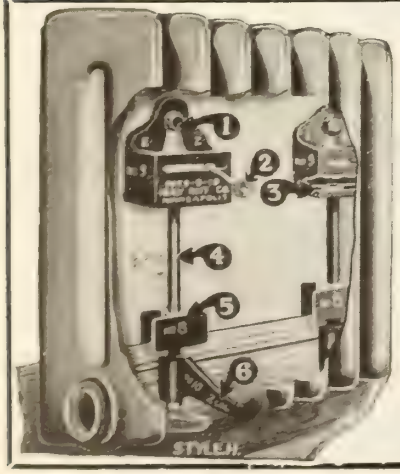

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Manufactured in Canada **Reasonable in Price**

(1) One Bolt.
(2) Invisible Washer.
(3) Horizontal Adjustment.
(4) Vertical Adjustment.
(5) Baseboard Adjustment.
(6) Made for Wall and Column Radiation.

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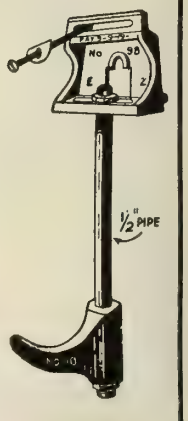

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CRANE Sanitation Fixtures

are designed to meet every requirement, condition and taste. They reflect a distinct advance in sanitation fixtures of permanent wearing qualities and are installed in homes, schools, hotels, office buildings, hospitals, parks, railway stations, churches, playgrounds, and many other public and private institutions.

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5

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Beaton & Corbin Mfg. Co., Southington, Conn.
W. H. Cunningham & Hill, Ltd., Toronto.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
J. H. Williams Co., Brooklyn, New York.
Steel & Radiation, Ltd., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.

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James Morrison Brass Mfg. Co., Toronto.

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Gendron Mfg. Co., Ltd., Toronto.

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W. H. Cunningham & Hill, Ltd., Toronto.

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Lord & Burnham Co., Ltd., Toronto.
Spencer Heater Co., Ltd., Toronto, Ont.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal.

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C. A. Dunham Co., Ltd., Toronto.
James Morrison Brass Mfg. Co., Toronto.

BOILER STANDS
Fittings Limited, Oshawa.

BOLTS, EYE
J. H. Williams & Co., Brooklyn, N.Y.

BOLTS AND NUTS
Fittings Limited, Oshawa.

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Canada Metal Co., Ltd., Toronto.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings Limited, Oshawa.
Galt Brass Co., Limited, Galt.
Kerr Engine Co., Ltd., Walkerville.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Trimont Mfg. Co., Roxbury, Mass.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.
W. H. Cunningham & Hill, Ltd., Toronto.

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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Wolverine Ltd., Toronto, Ont.

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Fittings Limited, Oshawa.

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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

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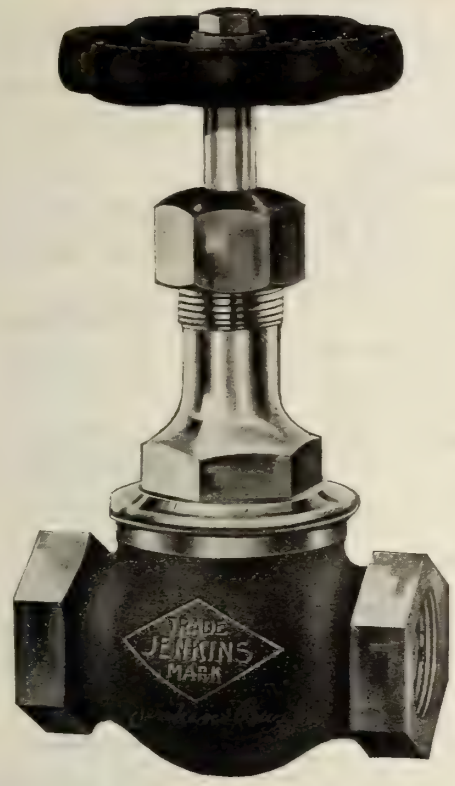

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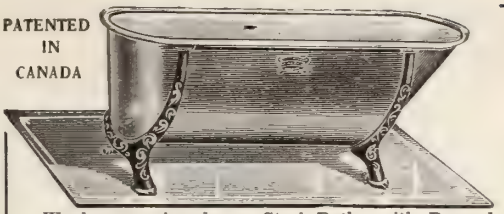

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Our new patent Roll Rim Enamelled Steel Baths are now ready for shipment.—Order samples.

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Suitable for the approaching period of building activity, road construction, etc. This is a line of great importance in making successful, profitable contracts. Our C. T. Brand of Wrought Pipe has been

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Ask your Jobber for C. T. Brand Wrought Pipe

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The APEX Closet Bowl has special features that place it in a class by itself.

Clean-out device located at head of trap. Any obstruction can be located and removed in five minutes without disconnecting from floor or water. **Cannot overflow.** Silent in operation.

Find out all about the APEX before installing another closet bowl.

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WATCH

FOR THE

JULY 15 NUMBER

OF

Sanitary Engineer

Can Water Systems—Septic Tanks, Heating Systems and Plumbing Fixtures—be sold to Farmers?

Billy Higgins, of Higgins & Large, Limited, Sanitary, Heating and Domestic Engineers, of Brampton, Ont., says it is possible and is going to tell how his firm does it.

In the July 15 Number, there will be a host of other information that you can cash in on.

Make sure you read this number thoroughly. It's worth it.

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CLOSET TANKS

PUSSYFOOT CLOSET TANK
OAK FINISH TYPE S.

Are Renowned for Beauty of Design

We showed the way in Beautiful Designs for Composition Tanks.

OUR NEW VALVE

Patent Applied

For Simplicity

Shows the way in Valves.

No improvement in years, can compare with this quick acting, easily-adjusted Valve.

Insist on "Pussyfoots" from your Jobber, and see you get them.

SAME PRICE. **BETTER VALUE.**

BETTER SERVICE.

SILENT. **EFFICIENT.** **DURABLE.**

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The New Design VitrO

THE New Design VitrO represents the ultimate in Closet Tank Design. Backed by years of manufacturing experience, this New Design, "No Trouble" VitrO, from its perfectly made interior fittings to its exterior of snowy whiteness and of beautifully shaped proportions, carries an instant appeal to discriminating buyers.

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It has no substitute.

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GALT - - ONTARIO

Every Tank Tested

VITRO NO TROUBLE TANK

Every Part Perfect

Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XVI. PUBLICATION OFFICE, TORONTO, JULY 15, 1922 No. 14

EMPIRE

A Fixture that Saves the Water

A-415

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A feature worthy of consideration is its sure and rapid shut-off—this is important where the water passes through a meter. The "Emco" Basin Cock does not drip and cause annoyance at night.

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"Saves the water as it ought to."

Empire Brass Manufacturing Company

LIMITED

London and Toronto, Canada

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PUSSYFOOT CLOSET TANK
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Are Renowned for Beauty of Design

We showed the way in Beautiful Designs for Composition Tanks.

OUR NEW VALVE

Patent Applied

For Simplicity

Shows the way in Valves

No improvement in years, can compare with this quick acting, easily-adjusted Valve.

Insist on "Pussyfoots" from your Jobber, and see you get them.

SAME PRICE. **BETTER VALUE.**

BETTER SERVICE.

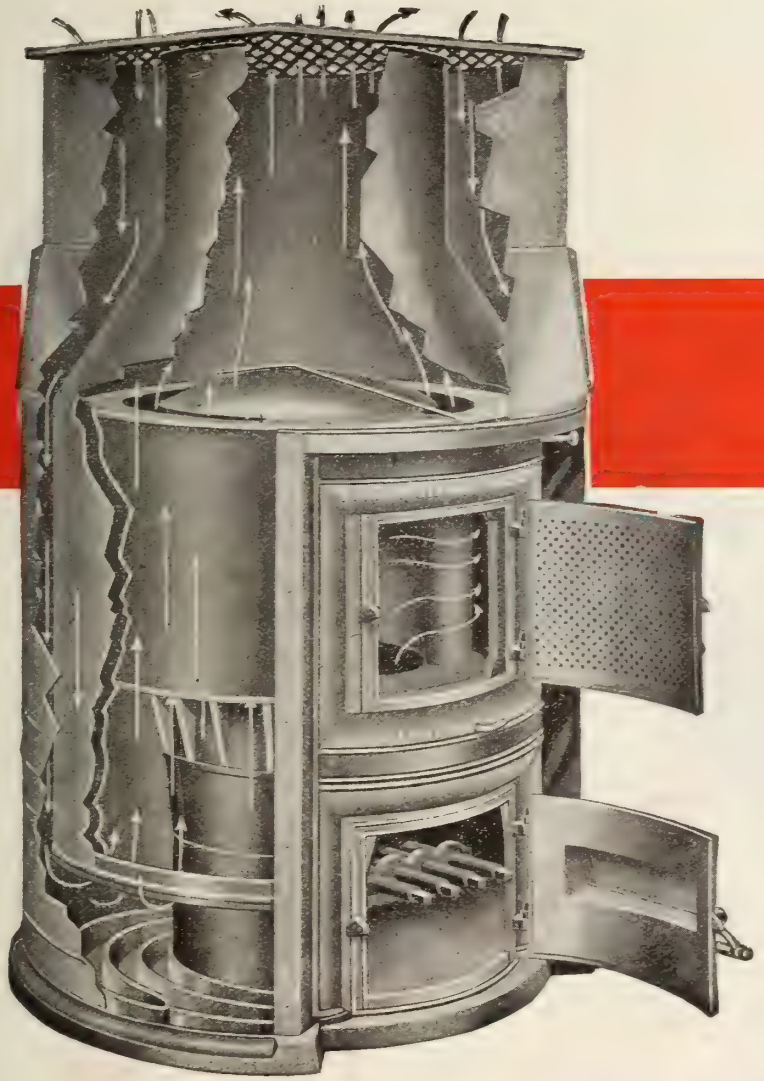
SILENT. **EFFICIENT.** **DURABLE.**

THE CANADA METAL CO., LIMITED

TORONTO

Montreal **Hamilton** **Winnipeg** **Vancouver**

Jewel Sales Increasing Rapidly



The approach of the furnace season finds the JEWEL as big a favorite as ever. JEWEL sales during the past year have shown a phenomenal increase and all indications point to a still greater demand for Canada's most popular heating unit.

You can't keep a good furnace down any more than you can keep a good man down, and that's a big reason why the JEWEL retains the lead in the public estimation. Thousands of satisfied JEWEL owners throughout Canada are enthusiastic boosters with the result that JEWEL dealers are cashing in strong on JEWEL prestige.

There is still some good territory open for reliable dealers. Write us to-day for a proposition and make sure of your JEWEL profits for the coming season.

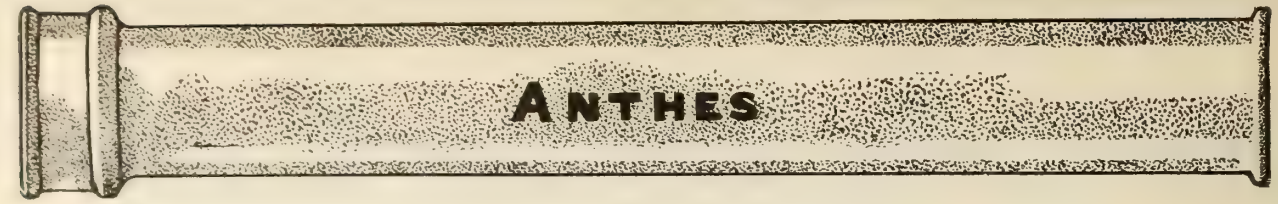
MANUFACTURED BY

The Burrow, Stewart & Milne Co., Limited

HAMILTON, ONTARIO

Branches :

TORONTO WINNIPEG MONTREAL



Specify "Anthes" and

See That You Get It

Discriminating Sanitary Engineers prefer "Anthes" soil pipe because its dependable thirty years of manufacturing experience have made it so.

The big Anthes Plants at Toronto and Winnipeg are working at capacity to supply Canadian Sanitary Engineers with quality soil pipe and fittings.

Anthes Soil pipe and fittings cost no more than the ordinary kind, each piece is tested, and is guaranteed to last longer.

Build for permanence by specifying "Anthes."

SOIL
WASTE
VENTS
LEADERS
DRAINS
SEWERS

Anthes Foundry
Limited
Toronto and Winnipeg

Manufacturers of
Cast Iron Soil Pipe and Fittings

Selling The Public

This Advertisement Will Appear In July 15th MacLean's

Better Bath Rooms

From the Atlantic to the Pacific—from James Bay and far-off Dawson City in the North to the American border line—in city mansions—town homes—country dwellings—in prairie homes and log shanties—the message of "Standard" plumbing fixtures is being carried and read daily through the columns of such magazines as MacLean's and the Canadian Home Journal.

Are You Cashing In on The Demand We Are Creating

Are you letting people know that in your display room they can see in reality the class of fixtures that attract them in our advertising?

Let us send you booklets and folders for distribution.

Use the free cut service which we have had prepared for your local advertising.

Standard Sanitary Mfg. Co.
Limited

General Office and Factory: Royce and Lansdowne Aves.

Toronto, Ontario
BRANCHES
Calgary—354 11th Ave., West
Winnipeg—145 Market St., East

"FIX IT WITH RAWLPLUGS"

THIS DEVICE IS INVALUABLE TO ANY SANITARY ENGINEER WHO TAKES PRIDE IN TURNING OUT SUCCESSFUL WORK

PROMINENT USERS OF "RAWLPLUGS"

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D. A. BETHUNE, LTD.
JOHN COLFORD
CRANE, LTD.
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McFARLANE-DOUGLAS CO., LTD.
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Sole Agents For

Rawlplug Co., of Canada

SOUTHAM BUILDING, Bleury St., Montreal.

Sales Agents for Ontario:

DOMINION ENGINEERING AGENCY, LTD., 24 Adelaide St. East, Toronto.

THEY ARE REAL BUSINESS BUILDERS

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Last year an Ontario plumber decided that the installation of sewage disposal systems was good profitable business to go after. He made a close study of the field, worked out his selling arguments and cleaned up several thousands of dollars.

He's going to tell subscribers of Sanitary Engineer how he did it.

That's only one of dozens of sales ideas that appear in Sanitary Engineer during the course of the year, every one of them tried and proven methods.

Sales ideas—How to cut down overhead—Heating problems—Sewage disposal problems—Practical ideas on Sheet Metal Working—Current News of the Canadian Trade—How the Other Fellow is Doing Business—Constructive Editorials—Market Reports—You get all this and more in Sanitary Engineer.

Your Plumbing Department needs Sanitary Engineer.

$2.00 will bring it for a year.

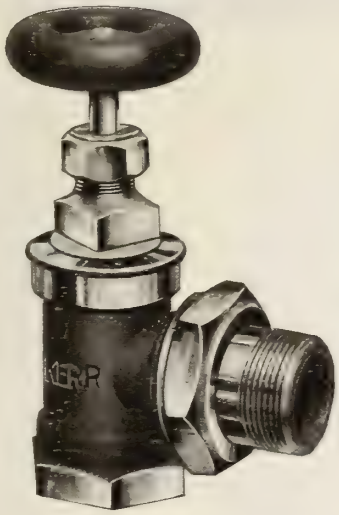
Sanitary Engineer
Plumber and Steamfitter of Canada

143 University Avenue, Toronto, Ont.

Kerr Quick Opening Hot Water Radiator Valves

Recognized for many years as the best valves of this type on the market.

One thing you'll find about these valves is that the finish is of the very highest and the design is most artistic and modern.



No. 37

Just as has been remarked previously, the "Kerr" products relfect credit on the man who specifies them and the man who installs them.

If you drop us a line we will furnish you with a price list.

The Kerr Engine Co., Limited

Valve Manufacturers - Walkerville, Canada

Why are the

VULCAN

Pure Air Furnaces Superior in Radiation?

because they give off a more satisfactory amount of heat in proportion than any other furnace, on account of the greater total area of radiation surface.

Easy to operate
Profitable to install
Strongly constructed of heavy metal

THE VULCAN CO., LIMITED

London - - Canada

TRADE B.O.T. MARK

Syphon Closets

Canadian Brass Company, Limited
Galt - Toronto

SANITARY ENGINEER
PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907 PUBLISHED TWICE MONTHLY

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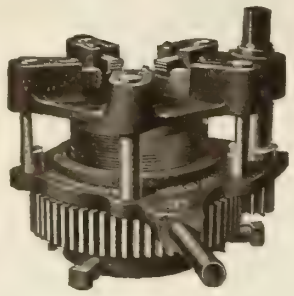

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Threading Tool
Capacity 2½" to 4"

For Rapid and Accurate Operation use

Jardine-Toledo Pipe Threading Tools

MADE IN CANADA

A well-known pipe fitter said, "After trying all other Pipe Dies you must come back to the Toledo principle."

Imitation is the sincerest flattery, there are a number of imitations, WHY NOT HAVE THE GENUINE?

Range ⅛" to 12". All sizes threaded at one cut.

ONE MAN DOES THE WORK OF TWO.

Leading Supply Houses will quote you.

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269 Richmond St. W., Toronto, Ont.

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SIGN AND MAIL THIS COUPON AND GET CATALOGUE P.3.

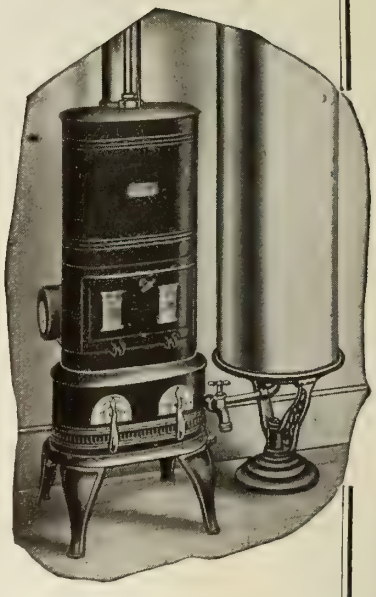
Name.....

Address.....

Sanitary Engineer

McClary's Water Heaters

Just the thing
For the Rural Home



For the benefit of those residing in the outlying districts here are two kinds of heaters that you should put on display and recommend.

The Florence Oil Water Heater

Illustrated at the right, is specially designed for homes where a gas supply is not available. It is an independent unit and can be installed anywhere. It is simple in operation, economical in fuel consumption and will heat water for washing in 10 minutes and for bathing in 40 minutes.

The other heater, McClary's Gas Water Heater, shown at the left, is substantially built and among other features has a Double Coil of Copper.

Write to the nearest warehouse for your requirements.

McClary's

London Toronto Montreal Winnipeg
Vancouver St. John, N.B. Hamilton
Calgary Saskatoon Edmonton

Established 1907

Circulates Throughout Canada

Sanitary Engineer
Plumber and Steamfitter of Canada

Published First and Fifteenth of Month

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Plumbers Perturbed Over Sales Tax

Many Enquiries As Result of Various Policies Adopted by Manufacturers and Wholesalers—Government Allows Sales Tax to be Absorbed in Prices But Not in Costs—Transactions With Distributors—Plumbing and Heating Goods Prices Revised

EDITOR'S NOTE:—Judging from enquiries which have been made of Sanitary Engineer by plumbers in various parts of Canada, many are somewhat at sea in regard to the application of the Sales Tax by manufacturers and wholesalers. An investigation of the situation made this week reveals the fact that absorbing the whole tax, others absorbing part of it and still others passing on the whole amount. On the other hand in some cases manufacturers are advancing prices to cover the "absorption" of the tax so that the final result to the trade is about the same. The following article gives rulings received by the Ottawa representative of Sanitary Engineer, it gives also some interviews with various manufacturers concerning their interpretation of the rulings and policies followed:

OTTAWA, Ont.—Officials of the Department of Customs and Excise at Ottawa are kept busy these days answering questions concerning the operation of the sales tax. Various interpretations are being placed on recent amendments to the Inland Revenue and Special War Revenue Acts and the deluge of enquiries being received go to show that there is still considerable misunderstanding.

Sanitary Engineer's Ottawa representative visited the department this week and secured rulings in connection with several contentious points.

Must Show Total Sales Tax on Invoice

One of these rulings was to the effect that it is absolutely necessary that manufacturers and wholesalers in billing plumbers for purchases, show the total amount of the sales tax applicable to the sale, as a separate item on the invoice. If a manufacturer wanted to absorb part of the tax, say 2¼ per cent. on a sale direct to the plumber which ordinarily would carry a 4½ per cent. tax, it would be contrary to the provisions of the act for him to show only the 2¼ per cent. on the invoice. He must show the full amount of the sales tax as a separate item.

Sec. 19 B. B. B. of the Special War Revenue Act, as amended at the last session of parliament, provides that: "The purchaser shall be furnished with a written invoice of any sale which invoice shall state separately the amount of such tax."

The above ruling will affect manufacturers, notably those manufacturers who, in connection with a revision of prices, have announced that in future they will absorb half the sales tax on sales to the trade and only show half the tax on the invoice. The manufacturers may be willing to absorb part of the tax, but they will have to do this by revising prices, or in some other such manner. Whatever they do in this respect they must show the full amount of the sales tax applicable to the transaction, stating "above amount includes Sales Tax paid by us amounting to $———"

Another interesting point raised by Sanitary Engineer was whether manufacturers on transactions of semi-finished products had to pay the sales tax on these transactions as between themselves.

How Tax is Pyramided

This enquiry was answered in the affirmative.

It was pointed out to the department that if a manufacturer of plumbing goods who purchased articles from another manufacturer to incorporate into his product before it was ready to be marketed, had to pay a sales tax on these articles before they went through the regular channels of distribution, it meant that the tax would be greatly pyramided and would work much hardship in a number of cases.

"That may be so," said the official, "but the transaction constitutes a sale by a manufacturer and every manufacturer must collect a tax on each sale. That is clearly specified in the act and there is no getting away from it."

Transactions with Distributing Agencies

A third question taken up was whether the tax was applicable to transactions between a manufacturer and his distributing agencies. The answer to this was given as follows:

"If the distributing agent is a salaried employee of the manufacturer, the tax is not applicable. But if he is conducting a separate business and acting merely on a commission basis, then he must pay the tax to the manufacturer.

Cannot Absorb in Costs

Discussing the subject with a large Toronto manufacturer who has made a close study of the regulations, Sanitary Engineer was informed that the manufacturer is allowed to absorb the Sales Tax insofar as relieving the plumber from paying it is concerned, but that he is not allowed to absorb it in his costs. At the end of the year when profits are being figured for other taxation the amount of money which it has cost the manufacturer to absorb the Sales Tax cannot be figured in operating costs. His profit is figured exclusive of that so not only is his actual profit reduced by this process but he is actually taxed on money already paid to the government in the shape of Sales Tax.

It was pointed out that the tax must be shown as a separate item on the in-

voice. If part of the tax or the whole tax is absorbed by the manufacturer it is either adjusted in a lowering of prices on the commodities listed or a clause appears in the invoice stating "above amount includes Sales Tax paid by us of $———"

"The government intended that this tax should be passed on to the consumer, but apart from this the average manufacturer and wholesaler operates on a very small margin of profit these days and absorbing a tax of 2¼ per cent. or 4½ per cent. would seriously cut into his revenue where a big turnover is made," said this manufacturer pointing out that his firm have widely advertised prices to plumbers and consumers on their products and that prices cannot be easily advanced to take care of Sales Tax absorption by the manufacturer. He pointed out that the Sales Tax has been increased over 100 per cent. since it was introduced and a further increase in years to come would render it difficult for those manufacturers who set the precedent of absorbing part of the tax. It was thought that there was no need for manufacturers to absorb any part of the Sales Tax unless in the case of goods on which re-sale prices are more or less established, and in these cases special arrangements have been made.

Eliminate Fractional Taxes

This manufacturer suggests a sales tax with no collection on transactions from manufacturer to jobber. This tax would be passed on and collected on every sale, eliminating transactions from manufacturer to jobber and would eliminate much of the detail work now made necessary by two fractional taxes. As it stands to-day if the manufacturer decides to absorb all the Sales Tax on sales direct to the plumber it means the jobber is forced to adopt the same policy or his prices will be 2¼ per cent. higher to the plumber than the manufacturers' price.

In conclusion this manufacturer pointed out that his raw material costs were still over 100 per cent. above pre-war prices but that the prices on his finished product were only 66-2/3 per cent. higher than pre-war prices. Under these circumstances and in view of the small margin on which business was being done it was stated to be financially impossible to absorb the Sales Tax and maintain present prices to the trade. Attention was drawn to the fact that plumbers should not discriminate against the manufacturer whose prices remain constant and who passes on the Sales Tax, in favor of the manufacturer who increases his prices and announces that he will absorb the Sales Tax. In some such cases as the latter recently announced, the product of the increase in price was said to be considerably more than was required to take care of the Sales Tax.

On certain lines of plumbing and heating equipment where the jobbers' and manufacturers' prices to the trade have been the same, the point has now arisen that there being only the tales tax of 2¼% on the transaction with the jobber compared with 4½% on the transaction with the manufacturer, the gross price to the trade from the wholesaler has been less than that from the manufacturer on the same article. While some manufacturers who have been thus affected decline to absorb any part of the Sales Tax and state that they have seen no need for so doing, yet in other cases Sanitary Engineer understands manufacturers are making some revision of price so that the gross price to the trade of the article will be the same whether sold direct by a manufacturer or through the medium of a jobber.

Government Will Issue Embossed Cheques To Persons Taking Out Licenses

In Connection With Increased Stamp Tax on Cheques Which Comes Into Effect on August First, the Government Issues Important Circular, Relative to Applications for Licenses

OTTAWA, July 12. (Special).—Valuable information regarding the operation and enforcement of the stamp tax, which becomes effective on August 1, this year, is contained in a circular just issued by the Department of Customs and Excise to the collectors of that department.

"It is proposed to levy two cents per unit of $50. The tax as amended on June 12 provides for a graduated tax up to $5,000, which would mean a tax of $2. That will be the maximum tax. The large proportion of the cheques of the country are $50 or less, and this will remain as at present at two cents."

Securing a License

The circular issued under the direction of George W. Taylor, Assistant Commissioner of Customs and Excise, relates to the application for a license: "There shall be forwarded with the application for a license a requisition (Form E., 159) for the numbers of the embossed cheques required by the licensee, together with a certified cheque, by way of deposit, payable to the Receiver-General for an amount equivalent to the estimated tax as per assertions 1 (A) and 1 (C) on application for license plus 25 per cent. The commissioner may at any time require a larger deposit."

Cheques will be embossed and issued to a licensee subject to certain conditions some of which are as follows: "A licensee shall keep an account in which shall be entered at the time each cheque is drawn particulars of the cheque, showing the serial number, the date of issue, the amount and the sum due as excise tax thereon. A separate account shall be kept for each bank or branch of a bank on which the licensee draws cheques. On or before the fifth day of each month the licensee shall forward through the Collector of Customs and Excise at the port through which the license was obtained to the commissioner the account or accounts, as the case may be, for the preceding month, verified by the statutory declaration of the licensee, and accompanied by a certified cheque, payable to the Receiver-General, for the total sum of tax shown as accrued by said account or accounts; and all bank statements of cheques debited to the licensee's account and all relevant books of account of the licensee shall be open to inspection and audit, for the purpose of these regulations, by officers of the Department of Customs and Excise, and such audit shall be made by officers of the department at such times as are deemed necessary.

"Each embossed cheque shall have printed or lithographed on it, in a prominent manner, the name of the licensee, the number of the license and the name of the bank on which the cheque is to be drawn; and no person other than the licensee whose name is so printed or lithographed shall draw such cheque, and no bank shall pay an embossed cheque drawn by any person other than the licensee whose name is so printed or lithographed, or on which the license number does not appear.

"In the event of a licensee abandoning his license, there may be repaid to him the amount of his deposit in excess of the amount payable in respect of the stamp tax on all embossed cheques issued by him, less the cost of embossing and transportation of that portion of unused cheques remaining on hand, and the unused cheques must be returned to the commissioner. If a license is cancelled for a violation of any of the provisions of the Special War Revenue Act and amendments, or of these regulations, or for any other reason, no portion of the deposit will be repaid to the licensee, and he shall be liable for any further amount payable by him in respect of stamp tax on embossed cheques which he has issued, and he shall return to the commissioner all un-issued embossed cheques.

Forwarding Blank Cheques

"The blank cheques must be forwarded to the American Bank Note Company, Ottawa, who must be advised by the shipper as to the quantity and description of blank cheques in the consignment, the outer covering of the parcel being also marked to indicate the name and address of the shipper. Packages the gross weight of which exceeds 90 pounds, if shipped from Montreal; 60 pounds if shipped from Toronto, or 40 pounds if shipped from

(Continued on page 14)

Does Effective Educational Work to Develop Rural Sanitary Business

Showroom is One of the Main Assets Say Higgins & Large, Sanitary and Heating Engineers of Brampton, Ont.—Thousands of Dollars Worth of Rural Work Available to Most Plumbers—Need Much Educational Work to Get Farmers "Out of the Rut"

By "KING"

THE first thing that impresses one on entering the showroom of Higgins and Large, sanitary and heating engineers of Brampton, Ont., is the cheery countenance of "Billy" Higgins smiling from behind a square of plate glass, placed in the front of his office for the express purpose of allowing Billy to see what's happening in the store and on the street. This smile makes you feel at home as soon as you see it.

When the representative of Sanitary Engineer was comfortably seated and explained our business, Mr. Higgins started to tell us how he found it possible to be a plumber and still manage to get three square meals a day, have an impressive residence, a fine automobile and several other things.

Just as he was about to commence, the telephone rang. The courteous manner in which it was answered showed a striking reason why people like to do business with this firm.

"How do we get business?" he asked on his return. "Why it is easy—if you know how," he added with a grin. "Take that show room for instance. That's one of our main assets. I signed a lease for ten years on this place some years ago and the rent is ridiculously low. That helps a lot and enables us to go to a litte extra expense in keeping the show room in trim. Unless your show room is kept spick and span, you are much better off without one. We see to it that ours is kept clean and is attractively arranged. We take pride in it because we realize that it brings us a lot of business. There would be a great deal fewer plumbing fixtures in Brampton to-day if people had not seen them in our window.

Turning to Rural Districts

"As a matter of fact," he continued, "This town is pretty well plumbed out. We know a great majority of the people in town personally and of course we take advantage of that fact to talk shop to them at every opportunity. Now we need new fields to conquer and we've only been able to find one. That's the country. I'm firmly convinced that there are wonderful possibilities in the rural districts. Why every house should be equipped with a furnace, water system, sewage disposal field, bathroom fixtures, hot water heaters and—why there are millions of dollars worth of work within a short radius of Brampton waiting for some one with a little aggression to go out and get it.

"This field has never been scratched. Why, I could count the farmers who have water and sewage disposal systems that I know of around here, on the fingers of my two hands.

"Of course there is a reason for this. There has never been much of an attempt to do any educational work along these lines by the manufacturers. These farmers nearly all possess motor cars, pianos, phonographs, etc., and why—? Because the manufacturers of those articles realize the value of advertising. They co-operated with dealers in going after business. They gave them a very real support with the result that the public is well sold on the idea and those who cannot afford these things just now, fully intend to buy just as soon as they have the money. We have done a lot of rural work and we intend to do a great deal more than we have been doing.

Need Educational Work

"In the first place a little educational work is necessary. People don't realize just why they should spend several hundred dollars on water systems and bathroom equipment. They don't know that apart from the inconvenience of the little house at the back of the lot, it is a menace to health. They don't realize that it is a breeder of disease and that many a cold and cough contracted in the winter time can be laid at the same door. They come back with the old argument that they have got along with it all right so far and have become toughened to it. But they don't realize that this exposure wears them out quicker. They don't realize that the death rate is proportionately higher in the country than in the city where sani-

A good effect is produced in the arrangement of this showroom of Higgins & Large, of Brampton, Ont., by hanging bathroom mirrors over each of the wash basins and placing the baths in the foreground. It links up in the prospect's mind how the three pieces will look when installed. The showcase in the rear, in front of the office, displays various small plumbing lines.

tary conveniences are available. They don't realize that throwing dishwater out the back door, in many cases in close proximity to the pump, is unhealthy to say the least, that it breeds flies and other insects and that it may result in a lot of sickness.

"Oh, there's a lot of things they don't realize and it's up to us to drive it home. Now, I would suggest that a lot of advertising matter be sent out first, giving statistics proving that the death rate is lower in communities where sanitary conditions prevail, circular letters and folders showing the benefits to be obtained in having the different sanitary and heating equipments installed, the reasonable cost in comparison to the benefits received. I'd send a lot of this circular matter out for about a month before calling. The farmer will read this, if attractively prepared. His wife will read it too. They'll talk it over and by the time you call a lot of them will be anxious to get more details.

Selling the "Better Half"

"In every case I have found it good policy to get the lady of the house well sold first. If you can do this the battle is more than half won, and in the end she usually upholds the tradition of being the 'better half.' Show her how much time and labor it will save her to be able to get water from the tap, the advantages of a nice sink. Flatter her a little. Tell her that it is a shame for her to have to wear herself out drudging along under old fashioned conditions when she could take life easy and retain her beauty by installing modern fixtures. Tell her she's a young woman yet and is entitled to keep herself looking that way by every legitimate means. They all fall for a little flattery of this sort and this is a point that should not be overlooked when selling. Of course it has to be done in a subtle way and in a way that she will like. Apparent flattery won't get you anywhere. Tell her about her mother or sister or aunt in the city who looks so young in spite of the fact that she's past the fifty mark. Show her how city people retain their youthfulness by having every convenience. You'll find that you will create a desire in her to have all these things that will make things easier for her. Then make the husband see that it is his duty to do everything he can to lighten her work.

"Tell him how you sold Jack Hastings over on the next concession a water system, sewage disposal system, bathroom fixtures, and how Jack said that there was nothing too good for his little wife, how happy Jack's wife is now that she has all these conveniences and so on.

Keeping Children on the Farm

"Then if they happen to have any children, show them how having all these conveniences will tend to make them better satisfied with the old farm and do away with any desire on the kids part to fly away to the city. 'How You Gonna Keep 'Em Down on the Farm,' won't prove much of a problem if farm life is modernized. There is no reason why every farm should not have up-to-date sanitary conveniences. Farmers have the money and if you are aggressive enough and employ the right tactics it is not a difficult job to sell them.

Sell Furnace First

"I've always found it a good plan to try to sell a furnace first. By doing this it ensures that when the house is plumbed, there is no danger of pipes becoming frozen.

"Hydro is now available in most rural districts and this enables a farmer to operate an electrical water system at very little cost. I have found it a good point to impress prospects for water systems with this fact. Low operating cost is a big item and should be played upon strongly.

"Once a water system is installed, it is up to you to make this customer unhappy until he gets a sewage disposal system. Often times you can sell this at the same time as the hot water system but in any event, once the water system is installed you have a red hot prospect for sewage disposal system and plumbing fixtures.

"Once you've sold one man in a locality, you'll find it easy selling others. Your first sale will be the most difficult but I've found it worth while to spend a little extra time on it and get the prospect well sold because by doing this you make a booster for your equipment. Your customer will take a pride in showing the neighbors his new furnace, water system or sewage disposal system when they call, and will usually tell them what a splendid equipment it is, how it works and that he wouldn't be without it for anything now, and so on.

Wants Co-Operation

"Manufacturers could co-operate with us a little more closely by supplying us with well planned literature with our name printed on it, so that we could send it out and have some reasonable assurance that the recipient would know from whom it came. A lot of literature that is sent us has the manufacturer's name all over it in big letters. I very seldom send any of this stuff out because I'm not in business to advertise the manufacturer. I'm willing to co-operate with any manufacturer who wants to go half way but when the literature that is sent to me from some of them hasn't even room to put our name on it with a rubber stamp, then that literature is naturally shelved.

"There's just one more point that I find helps. Every bill that is mailed from this office carries an envelope stuffer of some kind or other. It doesn't cost anything to send and in case the recipient of the bill is inclined to think it a dunner, this thought is dispelled by the little circular which shows him that we are anxious to sell him something else. These circulars show different kinds of fixtures. They are attractively gotten up and as a rule I have found that manufacturers are only too glad to send along a quantity of them.

"Now the points that I have just mentioned are being carried out in practice here every day. We are constantly unearthing and are on the look out for new ideas that will help to make us better merchandisers. I read all the trade journals that I can get. I have to keep up to date. I'm afraid you'll have to excuse me now. That gentleman who has just come in wants to hand me a contract if I'm not mistaken. Call around and see me again sometime. So long."

GOVERNMENT WILL ISSUE EMBOSSED CHEQUES

(Continued from page 12)

Winnipeg, must be forwarded by freight. Under these weights shipment must be made by express. From each of the three places mentioned the parcels are to be forwarded by Canadian Government Railways or Canadian National Express (as the case may be), charges collect."

In this connection it is pointed out that there will be no expense to the licensee for the embossing itself, provided all the conditions stipulated in the circular are complied with.

Clause 24 refers to the conditions of refund: "Refund of excise tax may be allowed on embossed cheques returned to the department, when it is established to the satisfaction of the commissioner that the cheques, although drawn, were for some valid reason never negotiated, but on which the excise tax has been paid. Minimum amount of tax for which a refund will be allowed under this section shall be $5."

ANACONDA AMERICA BRASS CO. AT NEW TORONTO

A recent report from New Toronto says the Anaconda American Brass Company have opened negotiations with the Town of New Toronto with the object of obtaining a site and locating there.

This is further to the report appearing in a recent issue of Sanitary Engineer to the effect that this company had taken over the Brown Copper & Brass Rolling Mills at New Toronto.

GURNEY FOUNDRY PROPERTY CHANGES HANDS

The transfer is announced of the foundry property valued at $329,372 of the Gurney Foundry Co., Ltd., at 506 King St., West. The land has a frontage of 408 feet. It is transferred to a holding company known as Gurney Properties Co.

Psychology Plays a Big Part in Modern Selling of Plumbing and Heating Equipment

The Force Which Impels Various Types of People to Buy and How the Sanitary and Heating Engineer Can Link Up With These Elements—Suggested Conversation Between Plumber and Customer.

Written for Sanitary Engineer by K. B. ALLISON

PSYCHOLOGY is a mental philosophy. Psychology of selling will therefore be a calm mental reasoning of selling. I have written on this subject before and must confess that in attempting to discuss one's mental faculties my writings have been taken as too technical or on the order of the text book and I will therefore try and present the same thoughts in an every day sort of way. Let's go.

You can recollect a grown up person referring to a child having a large bump of inquisitiveness, or being stubborn, fussy, or sulky; and again you have heard of them as being the funniest kids for making up to everyone. Well these traits are part of our mental system and as faculties are situated, each in their own places, in our heads. A person is referred to as agreeable or quarrelsome; firm or indifferent; grasping or easy-going; cautious or reckless; that they have the faculty of remembering events, of being witty, or doing one thing at a time, of seeing the result long ahead, of being able to lead. There are forty-two of these faculties in the head of each one of us but in each case they are in different proportions. As a comparison there are only three colors of paint and all the various shades are obtained by the combination of various amounts of these prime colors. One person might be able to do a certain thing but would be unable to describe to others how to do it. Another person might be able to plan how a thing should be done but would be very poor on the execution of it. Sometimes a person can be induced to buy because Mrs. Jones has it, and another person cannot be induced to buy because of the same person. Sometimes one will buy because it is a new style of article whereas a conservative person will put off buying the same style article because it has not proven itself. Sometimes a person will buy because of faith in the firm or the person selling whereas another person places his own judgment above all else. Sales are made by appealing to a person's vanity their desire for good things, a likely future shortage of the article, its beauty, its utility, or its permanence. There are two classes of buyers—those who buy through intellect, that is clear reasoning; and those who buy through emotion, that is, their minds become agitated beyond the clear thinking stage. Folks are sold through the five senses.

Be sold on the L Goods

There are courses on salesmanship and I suppose hundreds of books written on the subject but it seems to simmer down to this that if one is to be successful at selling they must know the goods they are trying to sell, they must keep everlastingly at it and being sold on it themselves, must be sincere in the presentation of their case. Sincerity and truthfulness are essential as is the constant studying and ability to judge human nature. As no two sales are made alike there is no set rule that can be given as a guidance. A salesman starts by fitting himself into the attitude of the buyer and then, presenting his case, brings the buyer's attitude around to his side. Your prospect is not closing a sale while he is thinking of his golf game, so get his attention first. You next want his interest and you do not get that by telling him that you are trying to bring folks back to the days of the Romans when luxurious bathing was the vogue. He is not interested in ancient history. Probably it would be better to consider the progress of the sale along the right channel rather than by what-not-to-do and so we will give a hypothetical sales conversation here using only the means and knowledge which you could likewise obtain.

The scene is the office of the prospect whom we will call Mr. Smith and you, Mr. Plumber, have just been ushered in to see him, and have exchanged the usual salutations:

Mr. P.—"I received a message from Mrs. Smith this morning that your toilet tank was leaking and as I recollected that we had done previous work on it I looked up the workman's report and found that he had recommended it advisable that no more money should be spent on repairing the tank, notification of which we sent you at time of rendering our acount. (This statement of your methods in attention to the interests of your customers has established in his mind justification on his part in his attention to what you are saying.) I therefore thought it better that I should call myself so that I might suggest the best means of repair. The tank could be repaired by putting entirely new fittings inside, the present ones being worn, and while I do not want to find too much fault, yet they are a type which I would not have used because they lack the construction that permits of future adjustment after repairs."

Mr. S.—"What would that cost?"

Mr. P.—"From ten to twelve dollars."

Mr. S.—"Would that make the tank so that we would not have this bother in the future?"

Mr. P.—"That is questionable be-

You Can't Hold Back a Regular Fellow

cause the woodwork of the tank is split due to the water continually running in the tank, which has caused sweating. The woodwork supporting the copper lining will cause it to sag later on and leak, and to do this amount of repair to the tank means as much as a new tank." (The fact that Mr. S. has asked these questions proves interest.)

Show Confidence in Customer

Mr. S.—"You know more about these things than I do. What would you do if it were yours?" (Mr. S. is interested, he is showing confidence in your ability, admits being guided by your judgment.)

Mr. P.—"I could suggest a new tank, but when talking to Mrs. Smith the question of what I would do if it were mine came to me and I asked permission of Mrs. Smith to look over things generally, feeling that you would appreciate some careful thought on the matter from me. Before I really make my suggestion to you I would like to tell you a story of what happened just recently and that is I believe also the answer for you."

Mr. P.—"We have just finished a job for Mr. Jones, on Garden Avenue and I understood him to say he knew you."

Mr. S.—"Yes, we often visit with each other, although it is some time since I have seen him."

Mr. P.—"Well about two weeks ago he called me and wanted me over in a rush. I went. It seems he had just come back from a visit to the plant and his boss had insisted that he should stay up to their home while there. Mr. Jones was so enthused about the private bathroom off each guests' bedroom that when he got back he wondered how it was they had got along at home with only one bathroom to a nine-roomed house. As I said before we have just finished the job of putting an extra bathroom in his home and automatic domestic hot water heater and both Mr. and Mrs. Jones as well as myself are quite pleased with the result. Now you, Mr. Smith, have a three story home and I do not doubt but each morning there is quite a scramble for the one solitary bathroom on the middle floor. Wouldn't the extra bathroom on the top floor be a wonderful convenience? I had thought of moving the present fixtures to the attic especially as the present room is so well situated to take in the more modern plumbing fixtures of today and that is my answer to your question as to what I would do if it were mine."

Cautiousness a Barrier

Mr. S.—"Well I don't know about that, it seems to me you are trying to run up a bill of a few hundred dollars on me and I do not know whether I want to spend that much money." (Desire has formed but the bump of cautiousness created a barrier.)

Mr. P.—"I was expecting some such question and I have tried to prepare for it. If the additional bathroom saved you one half hour each morning its cost would be paid for in one year, granted that we forgot the fact that the money so spent has at least increased the selling value of your house by that amount. One's living today is more indoors than it was a generation ago and hence our bodies require more frequent cleansing. Now I do not suggest that you are careless in that respect, but is there not often a time when you might take a shower or an extra wash if it were not that the bathroom is in use when the inclination is on? Again forgetting the question of increased value, haven't you noticed that a bath gives you more pep for the day's work, a better spirit for the world and your fellow workers, and then, too, where can you spend such a small amount of money for so much continuous service?"

Mr. S.—"Jimminy crickets, man, but I'm beginning to believe you're right. We'll talk to the Jones' tonight when we are over there and see what they say. Or on second thought you go into the proposition and come over to the house tomorrow, and bring your catalog with you so that we can form some idea of which should be done."

And so it can regularly be. A buyer first has attention, then interest, then approval or disapproval of his judgment and then desire, which culminates in the making of the sale.

Tackle a prospect by stating right off the bat, "I want three hundred dollars to do that job," and the cautiousness to spend that amount will overwhelm the desire to have the work done. But crowd a person with the desire of possession and the price does not affect the sale so much. That is the way they sell automobiles and phonographs through desire for possession, and every bit of publicity tends to create that desire.

The Trade Opposes Receipt Tax Rulings

High Official of Customs and Excise Dept. Interprets Regulations as Applying Tax on Receipts on All Counter Sales Where Receipt Is Voluntarily Given—No Official Ruling Yet

By Ottawa Representative of Sanitary Engineer

OTTAWA, Ont.—"I would be inclined to think that the tax on receipts would have to apply to all counter sales where receipts are voluntarily given," said a high official of the Department of Customs and Excise at Ottawa.

It was in an effort to secure a definite ruling on this point that the Ottawa representative of Sanitary Engineer called at the departemnt The official expressed his opinion, as above and then added: "Nothing definite, however, has been decided. We are still considering the matter and it will probably be some time before we have drawn up any regulations."

The section of the Act dealing with this matter was gone over carefully by the official and Sanitary Engineer. When the former had finished reading it, the writer enquired:

"And what would that seem to you to imply?"

"I would interpret it as meaning that all counter sale receipts would be affected; but you cannot take that as the department's definite interpretation of the Act."

A memorandum by the department points out that for the purposes of the act, the expression "receipts" includes any note, memorandum or writing whereby any money amounting to $10 or upwards is acknowledged or expressed to have been received.

The receipts which do not come under the provisions of this section are outlined as follows:—

(d) A receipt for or upon the payment in any bank as defined in section twelve of this Act to be accounted for to the person to whose credit the money is deposited.

(b) A receipt or document in the nature of a receipt which is taxable under any other section of this Act.

c) An acknowledgment by a bank of the receipt of a bill of exchange or promissory note for the purpose of being presented for acceptance or payment.

(d) A receipt for or upon the payment of money paid for any purpose to or by His Majesty for or out of the Consolidated Revenue Fund or for or out of the Consolidated or General Revenue Fund of any province of Canada.

(e) A receipt endorsed or otherwise written upon or contained in any instrument liable to stamp duty and duly stamped acknowledging the receipt of the consideration money therein expressed.

The Act is clear on the method of stamp cancellation. It reads: "Cancellation shall be effected by the person who cancels the stamp, writing or impressing his name or initials on or across the stamp together with the true date of such writing or impressing."

The Act, nor the department's memorandum nor the department officials themselves do not make it clear who is to pay the tax in the event of it applying to counter sales.

"That is one phase of the question that we must decline to discuss at present. All the regulations governing this section of the Act, will be made public in due time," said the official.

The attitude of retail merchants to this piece of legislation is one of bitter antagonism. "It is a clumsy piece of legislation, and if it goes into effect, it won't be our fault." said E. M. Trowern. secretary of the Dominion Board, Retail Merchants' Association of Canada, who announced that the board was making plans to fight the matter to a finish.

THE STORY OF ROBERT HENRY JENKINS

As Told By Himself

Robert Henry Jenkins after serving ten odd years
As journeyman to Peter Hicks, he cast away his fears
And hung a shingle of his own out for the world to see
Which said "When you need plumbing, just call around on me."

For Bob had worked both long and hard and had the wherewithal
With which to start a little shop and set up a decent stall.
He also had his own ideas on how to dress the place.
For himself he bought some well cut clothes and barbicured his face.

Now the town that Bob had picked in which to make his gay "deboo"
Contained about two thousand souls, retired hicks through and through.
The country 'round grew splendid crops—these farmers had the "kale,"
And Bob began to figure out how best to make the sale.

He figured that they needed heat and water systems too,
"And septic tanks, by gosh," said Bob, "so the cold won't turn 'em blue.
"An' plumbing fixtures by the score I'll sell as a grand finale."
And with that Bob set to work to see what business he'd corral.

A second hand truck was picked up cheap. It wasn't a bad old Lizzie,
And Bob proceeded to cover the ground at a rate that would make one dizzy.
In the first week he'd made forty calls in just one wee small section
And the story that Bob told the folks spread like real infection.

"That old log stove has had it's day, Maria," says Jasper Hicks,
"We're gettin' a real new furnace in place of that bag o' tricks,
"That will keep each room at an even heat and keep us from gettin' chills,
"Bob Jenkins told me that was how to keep from gettin' ills."

"Them city folks lives longer'n us," says Ma Simpkins to her spouse,
"We gotta have running water all over this dog-gone house,
"And no more trips to the back of the lot," said Pa, "we're getting old,
"A septic tank will fix things up so we won't feel the cold."

Bob showed the folks death rates were high all through the rural area
And how poor sanitation made them prospects for malaria.
And how the girls and wimmin their youthful beauty always have,
Oh, Bob was a regular devil when it come to layin' on the salve.

We needn't proceed further for Bob made the grade all right.
He boosted his sales of rural equipment away up out of sight.
Oh, you can have your cities boys and your gay old times and free,
"But when it comes to gettin' business it's the rural field for me."

He Says "I'll Tell The World" But Can He Do It?

The Kind of Advertising that is most Effective for Your Purpose—Some Unusual Mediums which are often Neglected

Written for Sanitary Engineer by MAJOR L. L. ANTHES, Managing Director Anthes Foundry Company, Toronto

WHAT is advertising?

If this simple question could be put to every person and each individual sent in a reply there is no doubt that an interesting variety of answers would be assembled. In the main most of them would probably be similar in meaning but quite different in expression.

"I'll tell the world," is a slang expression used by many, but if you asked the user of the phrase how he was "going to put it over," the probability is he could not tell you.

Ideal advertising according to some experts is "Saying what you want to say to the greatest number in the most effective way." Truly there is much to be said in favor of this "bon mot."

Then again others in the know contend that "Telling your story by the shortest and quickest route to the class you want to reach," is the essence of good advertising. There is also wisdom in this viewpoint—the first might be called "indiscriminative" advertising, and the second "discriminative" advertising.

But then again there is the "opportune" system of advertising, that is, **the ability to take advantage of simple methods of publicity** whenever opportunity offers, and which may be quite inexpensive but nevertheless effective.

Everybody knows what advertising by mail means, but if you were asked if you ever advertised by freight or express you would either reply in the negative or wonder what your interrogator was driving at.

Most of us have to use thousands of shipping tags a year, but do we make any further use of them than merely address-slips?

A shipping tag can be made attractive and carry some message regarding our business at no very great cost over the ordinary plain manilla tag.

Have you not, while waiting for a train at some wayside station, looked over the packages which lie on a station platform and out of mere idle curiosity examined the shipping tags to see who was the shipper or consignee?

I have; so have you.

And furthermore if these shipping tags were attractive and had some information to convey regarding the shipper's business, would we not be a little more interested?

Of course we would.

Now this is one method of "opportune" advertising. Your store-front window is another, your delivery wagon still another—your envelopes and stationery generally—sometimes the side of your building, your "shingle," your packing-cases, your horse-blankets—in fact, everything pertaining to your business which will arrest the eye of the running, walking or traveling public.

All of these methods of "opportune" advertising are in practice to-day, but it is not everybody who is taking advantage of them.

There is no gainsaying the fact that **advertising stimulates buying.** Though at times it seems to be merely a 2% stimulant, nevertheless it is having an effect, or "registering," as the movie directors say.

Keep your name before the buying public and some of them at least will eventually ask for your wares. Numbers of these buyers if asked why they inquired for a certain maker's goods, could give no better answer than, "Oh, I saw the name somewhere." That is the point—parade your name and make it stick!

Once in the early days when automobiles were not so common as they are now, I was attending a trade convention. An out-of-town man whom I had met several times but who could not recall having ever met me was again introduced by a mutual acquaintance. I made up my mind that this last introduction would stick and suggested a motor ride, which in those days was rarely refused.

So away we went. I demonstrated how a corner could be taken on two wheels—how to turn a car "right-about" on a slippery pavement, and other interesting "stunts," which usually suggest themselves to light-headed youth, and all performed in "quick time."

When the ordeal was over and my relieved passengers again put their feet on "terra firma," heartily thankful that they were still alive though somewhat weak in the knees, I could not help humming the good old refrain, "Then You'll Remember Me."

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The Place of Modern Plumbing

MODERN plumbing is the science which gives the modern home comforts and conveniences which put to shame the homes of wealth and splendor of former years, and which safeguards the health of the family and works hand in hand with medical science in the prevention of disease.

Modern plumbing is not merely a net work of concealed pipes, valves and fittings, supplying a few fixtures with water, but it is an ideal—an ideal of comfort with economy, beauty with utility, finish with durability. It has given the cottage of to-day better fixtures than are to be found in the mansions of 20 years ago.

Modern plumbing teaches us how to live and puts the means within the reach of every family. It has carried its tenets to the small village and to the farm. It has conquered stubborn opposition in its efforts to better living conditions. It has made the factory a source of pride to its owner and a model of cleanliness and sanitation to the employees. It has raised the standard of living throughout the land. It has established a greater difference between this and other countries than any other one thing in the daily life of the people.

People select the furnishings of various rooms with infinite care. But how often do they pass over the equipment of their bathrooms and their plumbing in general, with a shrug? And how much more important is it that the bathroom be properly though judiciously equipped. Plumbing fixtures are used every day. They are not to be shifted about to secure variety or to satisfy a whim. They are not to be quickly discarded when fashions change. The layout of the bathroom, the selection of plumbing fixtures and especially of mechanical trimmings such as valves and faucets, which above all else should have easily renewable wearing parts—these matters are worthy of the utmost consideration.

* * * *

Water Service and Cars

ONE OF THE agricultural representatives of the Ontario Department of Agriculture was asked the other day in what percentage of rural homes in his district water is found under pressure. The answer was two per cent. Asked as to the proportion of such homes in which cars are owned, the answer was from two-thirds to three-quarters. It is probable that similar answers to the same questions would be given by the great majority of agricultural representatives in older Ontario.

Surely in this case first things have not been put first. There is no disposition to underestimate the value of a car on the farm. While to the majority of urban dwellers an auto is a means of securing pleasure or recreation, on the farm it is largely a business proposition that means a very great saving of time in going to market centres. A journey that formerly involved the spending of half a day is now accomplished without the loss of any appreciable time. By the use of the auto, too, means of recreation are brought within reach of people in the country that city people can secure with the aid of street cars.

But, while a car is an occasional time-saver or means of enjoyment, an inside water service and all that goes therewith spells a saving in time and labor to the hard-pressed homekeeper every hour of the day. To all members of the family it is conducive to health and comfort. Nor is the cost of installation prohibitive, or anywhere near so. An inside water service in a farm home can be installed at less cost than is involved in the purchase of an automobile and the expense of operation in the one case bears no proportion whatever to the outlay in the other.

* * * *

Many Factors in Freight Rate Situation

THE ANTICIPATED announcement of a reduction in freight rates on basic commodities, as mentioned in the last issue of Sanitary Engineer has been made this week. This action came somewhat sooner than was generally expected but the fact that the estimated revenue loss to the railways by the rate reduction suggested by themselves was much greater than the loss represented by the plan finally adopted by the Parliamentary Committee, was sufficient indication that the balance of the revenue loss which the railways were prepared to face would be accounted for by a decrease in freight rates on other commodities. This week a 7½% general reduction on a number of basic commodities is made including pig iron, scrap iron, billets, blooms, wire rods, etc. Insofar as the steel industry is concerned the fact that prices are now mounting rapidly may offset any small effect which this minor reduction might have. However it is appreciated as a step in the right direction and it may not be very long until considerably lower rates are in effect. In this connection it will be recalled that the judgment of September 13, 1920, raised freight rates to 140 per cent. of their former level in Eastern Canada and 135 per cent. in the West. These receded to 135 per cent. in the East and 130 per cent. in the West on Jan. 1, 1921, and further to 125 per cent. in the East and 120 per cent. in the West on December 1 last. After August 1 next those rates will still be 17½ per cent. higher in the East and 12½ per cent. higher in the West than they were prior to Sept. 13, 1920.

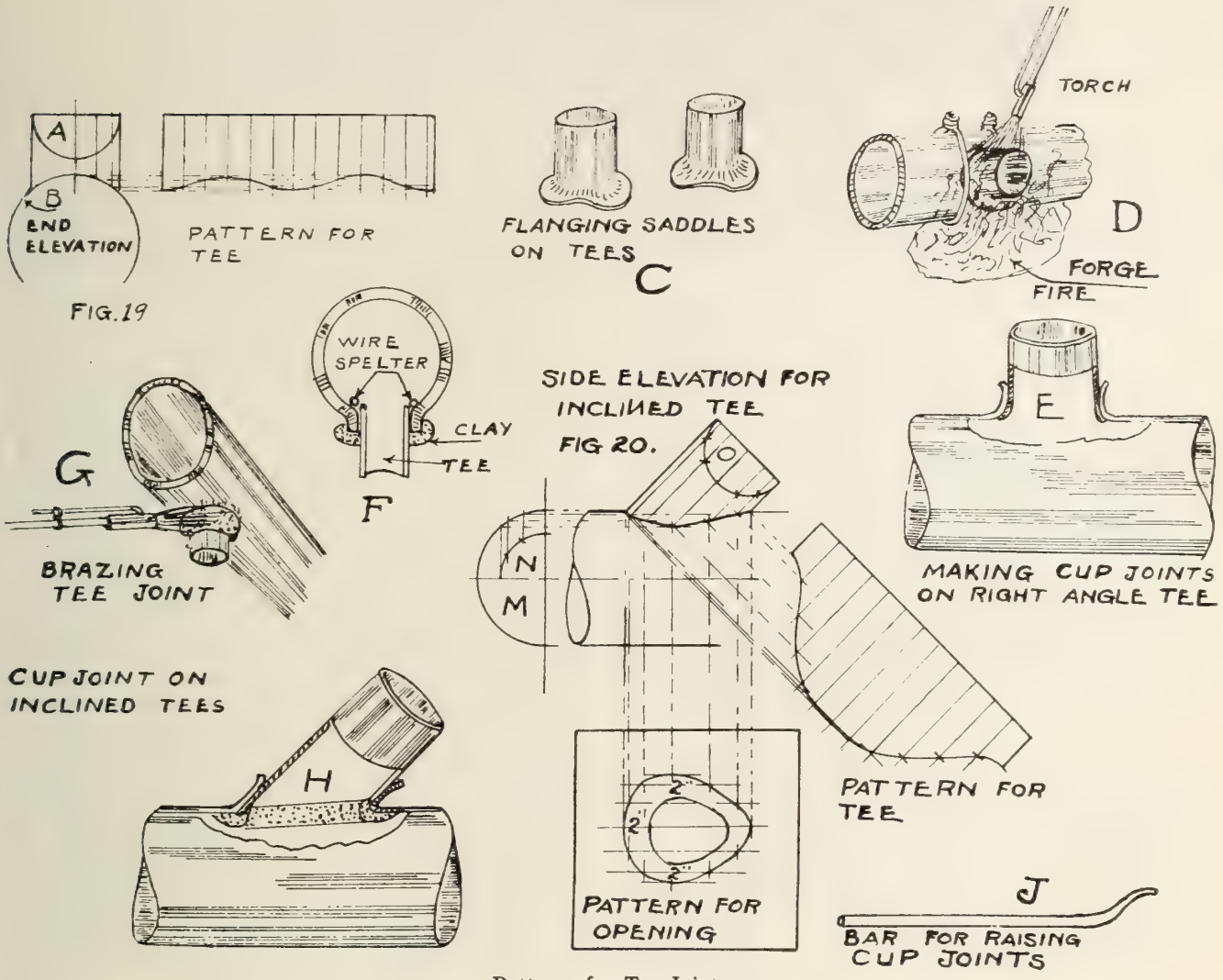
The reduction of 10 per cent. in U. S. freight rates may have some small effect on the movement of merchandise into Canada from that country though the fact that exchange is again increasing between the two countries and now threatens to stand at about 3 per cent. for some time rather offsets this effect. For instance on the freight charge on bar iron and steel from Pittsburg to Toronto the saving of the freight reductions would amount to about 3 cents per cwt. A 3 per cent. exchange between the two countries would obviously offset the effect of this reduction.

* * * *

Realizing that he is the servant and the customer is the master of the situation, the plumber must be prepared to hear criticism and perhaps complaints, in a patient manner, and at times be open to a certain amount of senseless abuse, suspicion and discomfort at the hands of the public. He must learn to sink his feelings behind a stoical exterior and smile as pleasantly as if nothing had occurred to disturb his equanimity. A tactful control will win its own reward.

Patterns For Tee Joints

By O. W. Kothe, Principal St. Louis Technical Institute,
St. Louis, Missouri.



Patterns for Tee Joints.

TEE JOINT patterns are not so particular in coppersmithing as in straight pipes, because the workmen generally do considerable trimming and these pipes are trimmed to the miter often from tubing and, if made up, they are first considered as straight pipes and then trimmed afterwards.

Of course, here and there, there is a mechanic who takes more pains and lays out his work, so at figure 19, we show how to lay out a right angle tee on a main pipe larger in diameter.

The branch pipe A shows how far it sets over the main pipe, so the semi-circle A is divided in equal parts and these parts are also used as a girth line.

Then where these lines intersected a large circle, they are squared over to intersect similar lines in stretchout and that gives the pattern.

To this, suitable stock must be added for flanging when a saddle joint as at C and D are made.

A suitable flange must be worked out on these tees so a good surface is provided for brazing.

After which, wires are wrapped around to catch hold of the saddle of tee as in sketch D.

It is then washed and treated with borax and then brazed, by using a forge fire on the lower side and a torch on the upper side.

Without a torch, it is very difficult to make a good brazed joint, because the fire must be so hot on the underside so it burns the tee before the upper side gets hot enough to melt the spelter, and then, too, by having the underside so very hot, the spelter will run down into the fire.

To overcome this, cup joints are generally made and enable brazing with less effort.

A cup joint is shown as at E where the upper edge is turned out to form a ledge for holding the spelter.

Other times a tee is placed on the bottom of a pipe and in that case, it can ' brazed as at F, where wire spelter is circled around the edge on the inside.

By wrapping clay around the lower edge and with the aid of a gas torch or two, a good hot flame is produced, and that will melt the wire spelter and cause it to flow in the seam, while the clay prevents it from running away.

The sketch G shows another view of this. After the joint is thoroughly brazed and cooled off, the clay is knocked off and the edges are trimmed up by filing off the rough edges.

Where inclined tees are met with as in figure 20, they can first be laid out by describing the semi-circle as at M for the main pipe and a quarter circle for the branch pipe as at N and O.

By projecting lines in the manner shown, the miter line is developed. Then by picking the girth from section O and set off at right angles to elevation, the pattern can be projected as shown.

If desired, the pattern for the opening can also be projected as shown, but on the inside of the line of penetration between the tee and the main pipe, at least a 2-inch edge should be allowed to make the cup joint.

A curved bar as at J is generally used for bringing up the cup joints.

By inspecting sketch H we see the

(Continued on Page 36)

Plumber Shows How Sales Tax Pyramids

Unless Either Manufacturer or Jobber Absorbs Part of Sales Tax, the Plumber Pays More For Certain Equipment From the Manufacturer Than if Purchased From the Jobber—Consumer Can Buy Cheaper From Retailer Than Direct From Manufacturer.

Written for Sanitary Engineer by K. B. ALLISON

THE question of Sales Tax procedure has recently come up and I would like to present some of my findings to readers of "Sanitary Engineer" because whilst the questions may be as yet unthought of by them, yet they have already aroused in others considerable confusion. I refer to the question of pyramiding the sales tax.

Most of us understood the sales tax as being a percentage which the seller added on to the net price of his invoice and that each one from the manufacturer down added on this tax in every case until it came to the retailer where it stopped. There are manufacturers who in addition to selling some of their output through the channels of the wholesaler, and therefore adding only 2¼% to their invoice do also sell some of their commodity direct to the retailer without any intermediaries in which case they show a sales tax amount of 4½%, one-half of which represents the tax from manufacturer to wholesaler, and the other half of which represents the sales tax from the wholesaler to retailer.

Let us make some definite examples—an article, say in our line of business, a gas water heater, has a selling price to the wholesaler of $12.00 and to the retailer of $14.00. The manufacturer's invoice to the wholesaler would read—

1—Heater	$12.00
Sales tax 2¼%	.27
Total	12.27

The wholesaler's invoice to the retailer would read—

1—Heater	$14.00
Sales Tax 2¼%	.31
Total	$14.31

Now if the manufacturer sells that heater to the retailer direct, his invoice would read—

1—Heater	$14.00
Sales Tax 4½%	.63
	$14.63

So that in the event of this amount of sales tax being added by the manufacturer the retailer really pays more for the heater by buying it direct than he does by buying it from the wholesaler.

Following Out Ruling

Because I have cited a water heater, do not let the trade get up in arms against this class of manufacturer, because they are only attempting to carry out the ruling which they were given to understand was the correct one from the Inland Revenue Department. As in the case of the Income Tax Returns there have been such a variety of rulings given out by the various tax collectors that it is hard for the average human being to know just where he stands, and while the conditions cited above may be working to the disadvantage of the trade, yet a manufacturer cannot be blamed for living up to the law as he sees it, and therefore trying to avoid as much as possible the wrath of the Inland Revenue Department or the severe penalties which they are imposing.

Exceptionally good information tells me that one manufacturing firm in Montreal had eleven clerks doing nothing else for six weeks but attempt to produce for inspection all the separate sales' records, etc., for the inspectors of the department, and I say attempt because even then the firm had not succeeded in satisfying the inspectors. Inspectors have demanded from manufacturers to know what percentage on their various back records of sales to wholesalers represented goods sold to the wholesaler for resale, and goods which while sold to the wholesaler for resale were actually afterwards consumed in the wholesaler's own business. The object of this being that the inspectors claim an extra tax on that portion of every invoice wherein the wholesaler had become the consumer.

Various Interpretations

I am speaking of these things because we have all previously heard of folks being penalized for non- failure to put in Income Tax Returns or else because the department was able to prove that the returns which were put in were not correct, and it is quite a jolt for one to have to go back a period of two or three years and produce all their records only to find that whilst they thought they had handled the matter equitably that they had in reality, because of a different interpretation of the law, run foul of the act. There may be manufacturers in our line to-day who may later find the arm of the Inland Revenue Department very severe. They may be carrying out to the best of their own knowledge, or with the help of a decision of the local collector, the law as they understand it; but I want to stress the point that they should be very careful to establish, fortheir own protection later, all decisions and information they receive.

Some may think that the manufacturer if selling direct to the retailer should absorb half of this sales tax, and whilst I have received a decision in accord with this, yet there seems to be considerable confusion as to how the manufacturer may absorb it, and it is just possible that in doing so he may cause considerable trouble for himself later on. Some think that the manufacturer's price to the retailer should be 2¼% less than the wholesaler's price to the retailer, but even granted this were in accord with the law one can readily understand the confusion which would result.

Some Collect From Consumers

I have also heard that manufacturers in selling direct to a consumer would collect from the consumer their established consumer's price, to which they would add a sales tax of 4½%. Whilst our trade would only be likely to be bound down to a manufacturer's established consumer's resale in the event of being placed in competition with the manufacturer in that sale, yet there are commodities in other lines on which the consumer's price is a very definite one, and because the trade cannot show a sales tax to the consumer, the consumer would therefore really buy cheaper from the retailer than from the manufacturer. Now this class of sale may be only hypothetical and would therefore rarely occur in actual business, yet it shows that those who are called upon to collect the sales tax must inevitably create some very queer conditions.

From enquiries I learn that there are some companies who do business as wholesalers but who also manufacture a part of the line which they sell. They on all invoices show only 2¼% as the sales tax regardless whether the item sold is one in which they are wholesalers only or manufacturers. To me it seems certain that the manufacturers must absorb this extra 2¼% but how are they to do it, or what records they must keep will be something for them to find out.

I realize that almost any sales tax must tramp on someone's toes, that any attempt to simplify it might easily cause more confusion instead of less, that it takes more than one

(Continued on page 26

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights —Keep the Entire Series Where It May Be Referred To And Studied

(Continued from last issue)

Figs. 77 and 78 show a rectangular percolating bed excavated out of the earth and built up of unjointed large clinkers or boulders, the interior of the filtering media being hard, broken brick. The floor of the filter is constructed of concrete laid to a fall of 1 in 80 to a central effluent collector which discharges in an inspection manhole.

The sections fully illustrate the false floor and different grades of filtrant as well as the method of distribution which will be fully described in detail later on in this chapter.

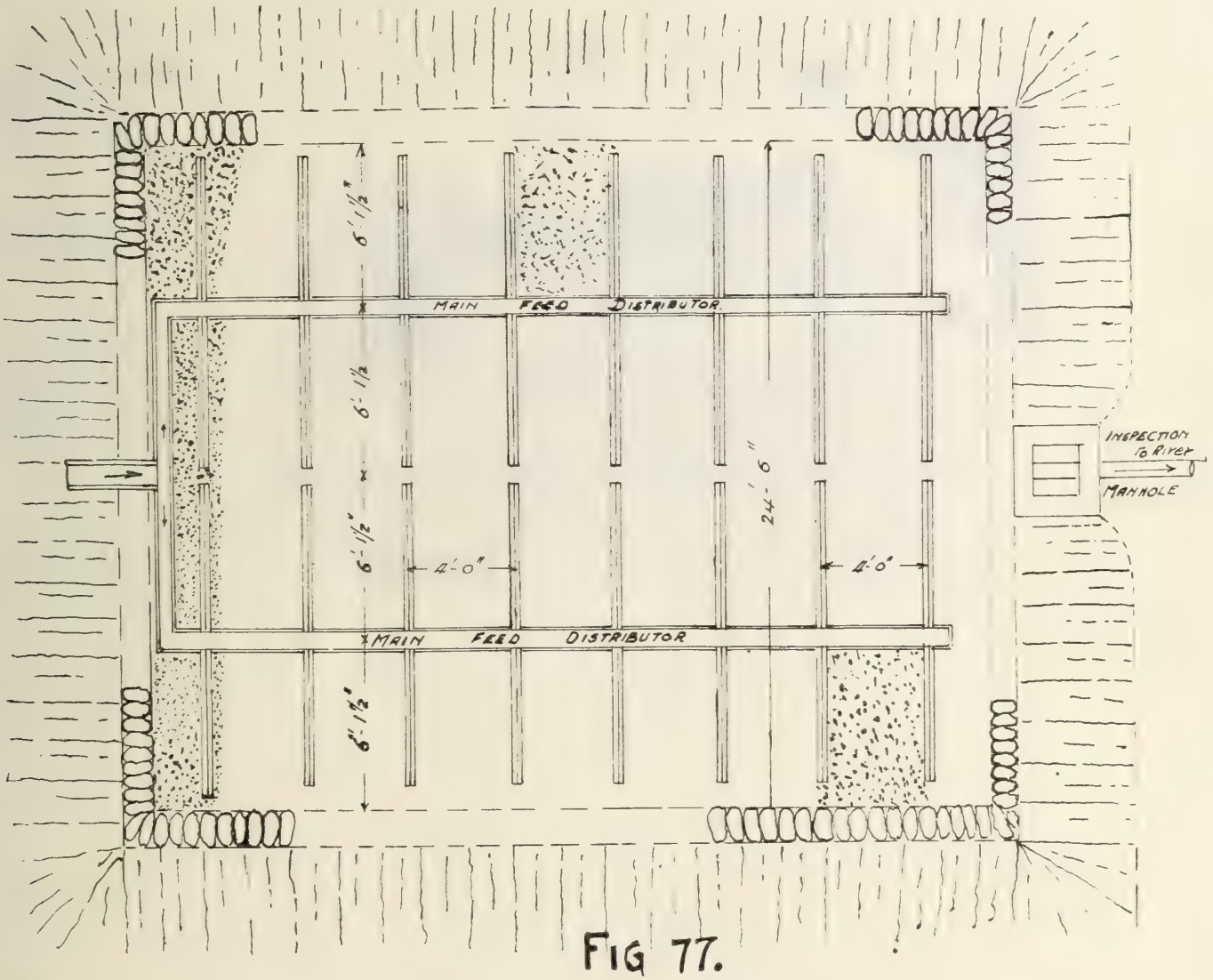


FIG 77.

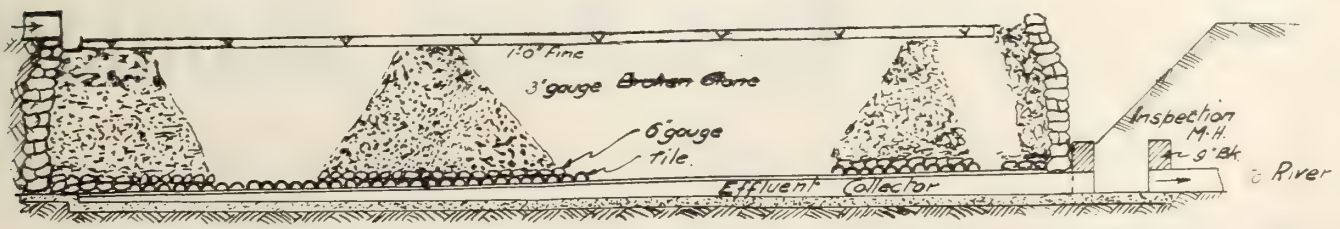
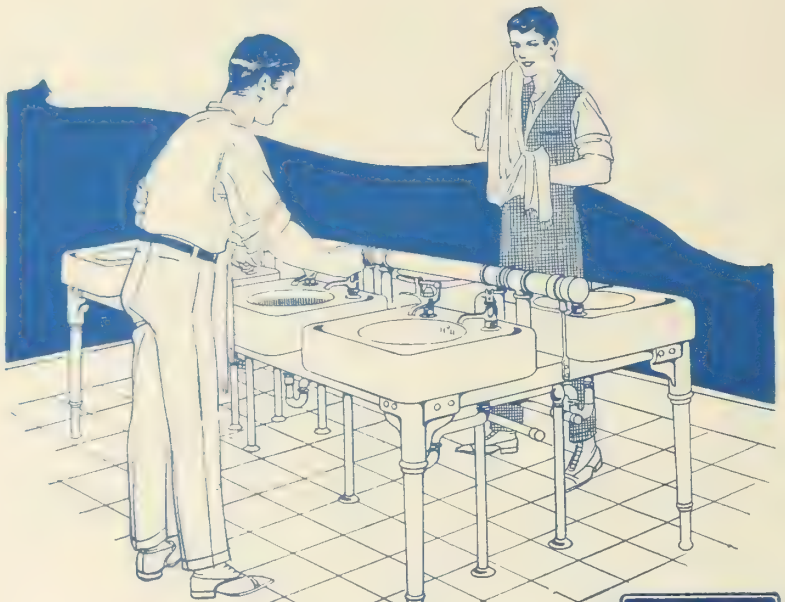


FIG 78.

Smoke Stacks and



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The factories of Cana
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Port Hope Sanitary F

Factories:
PORT HOPE, ONTARIO

Toronto Show Rooms:
119 KING ST. EAST

Winnipeg Offi
405 TRIBUNE B

lumbing Fixtures

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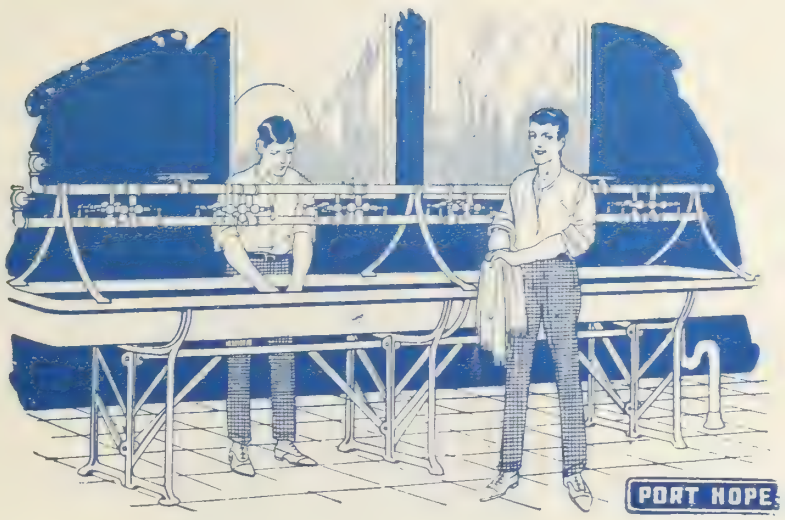

. Company, Limited

Head Office:
1012 ROYAL BANK BLDG., TORONTO

Montreal Office:
604 SOUTHAM BLDG.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

BUSINESS CHANGES

Montreal.—John Tweddle, Ltd., plumbers, have dissolved.

Black Lake, Que.—Houle and Couture, tinsmiths, have dissolved.

Port Arthur, Ont.—Greene & Stirling, plumbers, have dissolved partnership. L. A. Greene continues alone under the style L. A. Greene & Co., at the same premises.

Smiths Falls, Ont.—W. A. Derry has purchased the plumbing, tinsmithing and heating business of H. D. Moss. Mr. Derry is retaining the services of Messrs. A. H. Hope and S. Carroll.

NEW FIRMS

Port Arthur, Ont.—H. Stirling is commencing a plumbing business here.

Grenfell, Sask.—H. H. Campion has commenced a plumbing business here.

OPEN NEW SHOWROOM

Annapolis, N. S.—One of the finest showrooms in the new building erected to take the place of that recently destroyed by fire is that of Crowe & Bayer, plumbers.

IN NEW PREMISES

Lionel Gendron is now in his new corner building at 103 Bridge St., Hull, Que., which is probably the largest one in that town. He is specializing on window displays.

CONTRACT AWARDED

Kitchener, Ont.—Purdy Mansell Co., Toronto, have contract for plumbing, heating and ventilating of local collegiate at cost of $65,950.

LONG BRANCH TO HAVE NEW WATER WORKS SYSTEM

The Ontario Railway and Municipal Board, have sanctioned the establishment of a water system in the Long Branch area of the Township of Etobicoke. The cost of the system is estimated at $101,000 and the water will be obtained from New Toronto at a cost of 15 cents per thousand gallons.

CONNECTING HOT WATER HEATER

Answering a recent enquiry from a subscriber whose name has been misplaced, we would point out that it has been the general experience that domestic hot water heaters give the best service when connected to the top boiler connections.

YORK PLUMBING PERMITS AND LICENSES

The Plumbing Inspector of York Township reports that during the first half of the year 87 master plumbers' licenses and 734 plumbing permits were issued. The department has made 4,253 inspections. The revenue from permits issued totalled $3,776, while the revenue from plumbing licenses amounted to $435.

PASS WATER BY-LAW

Woodbridge, Ont.—Voting on the by-law to raise $15,000 for installing a water system throughout the village took place. The by-law passed by a vote of 102 to 41. This is the largest vote ever polled on a money by-law in the history of Woodbridge.

E. COOKE

SPECIALTY SALESMAN CHANGES POSITION

E. Cooke who has been covering Toronto, Eastern Ontario, and part of Quebec province for the past four years for the Good Mfg. Co., of New York, has joined the sales staff of Messrs. W. H. Cunningham & Hill, Limited, Toronto, and will cover practically the same territory.

Mr. Cooke succeeded W. F. Hill four years ago when the latter formed a partnership with W. H. Cunningham, and it is rather a co-incidence that Mr. Cooke is now joining up with this firm.

APPOINTED INSPECTOR

Kitchener, Ont.—Despite considerable opposition, the city council appointed ex-Ald. Geo. A Zimmerman as building inspector, the new appointee resigning his office as Alderman. The new inspector is an experienced plumber, and is conversant with the building requirements of the by-law. It was for these reasons that he was favored by the majority of the council for the position.

PLUMBERS PLAN STRIKE WHILE SEASON IS BUSY

Ottawa, Ont.—Failure on the part of Ottawa master plumbers and members of the Plumbers' Union to reach an agreement prior to May 1 may yet cause trouble here. Advantage may be taken of the prosperity in the building industry and the demand for good plumbers and the union may call a strike to enforce higher wages than are now being paid.

Ottawa plumbers are working open shop and, while members of the Master Plumbers' Association claim to have enforced a rate of 75 cents an hour, the employees state that most of them are receiving 80 cents and more.

REMOVE HAMILTON SEWAGE DISPOSAL SITE

Hamilton, Ont.—Submitted with a view to giving water rights to the United Gas and Fuel Company and the Grasselli Chemical Company, the Harbor Commission conferred with the Board of Control and urged that the city abandon Stipes' Inlet as a site for the new sewage disposal plant, and accept equal acreage farther east, which the commission will reclaim.

Tacit approval was given by the Controllers, and the scheme will likely come into being, provided the reclamation work to be undertaken by the Harbor Commission is not unduly delayed, as the city intends constructing the new sewage disposal plant early in the spring of 1923.

Before any definite plans are formulated, however, the engineers of the Harbor Commission and the city will prepare data on the costs involved in the new project, after which approval must be obtained from the city, and then a joint appeal will be made to the Federal Government for a grant.

STEAMFITTERS LEAVE FOR JOBS IN STATES

A number of steamfitters of the Toronto union are leaving the city for Detroit and other nearby cities of the United States where work is said to be easily secured and wages excellent. At the present time it is difficult for steamfitters to secure work in Toronto but it is easy for experienced plumbers to obtain employment. This is said to be due to the fact that building in process is largely that of dwellings and stores.

The business agent of the Plumbers' and Steamfitters' Union reported that conditions were bad with the members, 30 to 40 of them being out of work. "Very little is being done in the building of large residences and factories where steamfitters can be employed. Many houses valued at $9,000 and upward which formerly had hot water heating, are now fitted with hot air heating," he said.

ALGAE GROWTH CLOGS CHATHAM FILTERS

Chatham, Ont.—What has been done regarding the recommendations of the provincial health engineer in connection with the local health engineer in connection with the question of taking care of the algae growth at the local sedimentation basin during the hot weather?

This is the question that is being asked in local health circles. Dr. McRitchie, Medical Officer of Health stated that as far as he knew nothing had been done to overcome this vegetable growth, which always occurs during the hot weather and makes satisfactory filtration of the city water very difficult, as in time it clogs up the filters to such an extent that they will not operate with any success. He said that if the matter is to receive any attention, it should be given at once, as the hot weather is now with us and the growth will make rapid progress, and it will soon be too late.

In the spring the engineer from the provincial Board of Health was here and advised the civic authorities what should be done to overcome this difficulty. The only means to destroy the algae growth is the use of copperas and the local plant has no means of applying this remedy. It was recommended that the basin be divided off, and a new arrangement installed at little expenese whereby sufficient quantities of copperas could be put in the water whenever necessary.

Journeyman: "I came in to ask you, sir, if you could raise my wages."

Master Plumber. "It isn't payday."

Journeyman: "I know that, sir; but I thought I would speak about it today."

Master Plumber: "Well, go back to your bench, and don't worry. I've managed to raise it every week you've been with us so far, haven't I?"

WESTERN ONTARIO NEWS

Ratepayers of Exeter, Ont., will vote on a by-law on July 17 to provide $6,000 for sewer extensions.

David Ferriss, Harrow, Ont., wants prices on heating, plumbing and electrical work for new $5,000 residence.

Tenders will be received until July 8 by architect W. G. Murray, Dominion Savings Building, London, Ont., for heating, plumbing and electrical work in connection with new $50,000 school at Springfield, Ont.

The Wright Teale Co., Dundas St., London, Ont., has been awarded plumbing contract for new $5,000 residence for Dr. Bean.

W. Roome, 378 Central Ave., London, wants prices on hot air heating, plumbing and electrical work for new duplex to cost $8,000.

W. J. Dowd of Listowel, Ont., wants prices on hot air heating, plumbing, and electrical work in connection with new $4,200 residence.

Dr. Ireland, 309 Ottaway Ave., London, Ont., wants prices on hot air heating, plumbing and electrical work for new $4,000 residence.

H. Murdy, Parkview Apartments, London, Ont., wants prices on hot air heating, plumbing and electrical work for new $6,000 residence.

Wm. Blac lock, of Brigden, Ont., is preparing plans for new $4,500 residence and wants prices on hot air heating, plumbing and electrical equipment.

W. T. Merritt, West Lorne, Ont., is preparing plans for new $3,800 residence, and wants prices on hot air heating, plumbing and electrical work.

D. Atkinson, Preston, Ont., has been awarded the heating and plumbing contracts for new buildings costing $225,000 for the Preston Sanitarium Co.

Williams & Roberts, London, Ont., have been awarded plumbing and heating contracts for new houses costing $9,000 being erected by Thos. Janes.

H. M. Petermann, London Loan Building, London, Ont., wants prices on hot air heating, plumbing and electrical work for two residences to cost $10,000.

A. F. Depotie, London, Ont., has been awarded steam heating contract and plumbing work in connection with alterations costing $35,000 at the St. Marys, Ont., collegiate.

John Eggett, of Eggett & Co., London, who was recently operated on for appendicitis is able to leave the hospital but will be unable to attend to business for a couple of weeks.

Plans are being prepared for a 20 room addition to the General Hospital at Strathroy, Ont., and prices are wanted on steam heating, plumbing and electrical work. L. H. Dampier, chairman of board.

Sudden Death of John M. Taylor, Jr.

John McPherson Taylor, Assistant-General Manager Taylor-Forbes Co., Ltd., Guelph, and Director Everlasting Valve Co. Dies Suddenly—Eldest Son of President J. M. Taylor

LATE J. M. TAYLOR, JR.

GUELPH, Ont.—The sudden death is announced of John McPherson Taylor, eldest son of John M. Taylor, president and general manager of the Taylor Forbes Co., Ltd. While Mr. Taylor had not been well for some time hopes were entertained that he was well on the way to recovery. He had been at the office up to the day previous to his death and had been unusually cheerful in anticipation of a holiday at his summer home at Grimsby, Ont. In the evening he took a turn for the worse and passed away shortly after midnight, succumbing to a disease which originated in an attack of influenza about two years ago.

There remain to mourn his loss his parents, Mr. and Mrs. John M. Taylor, his wife, Lila Bernice Rupay, four sons, two brothers, Milton and Homer and two sisters.

J. M. Taylor, jr., was born in Toronto on December 14, 1889, where his early education was received. Since coming to Guelph he had been active in the Taylor-Forbes Co., and at the time of his death was assistant general manager. Among the employees he was looked upon as an exemplary character and greatest tribute is paid by his business associates as to the credit and distinction with which he filled his position. In addition to his connection with the Taylor Forbes Co., Mr. Taylor was a director of the Everlasting Valve Co., Toronto. He was an active church worker and a member of various lodges and clubs, among the members of which he was held in high esteem.

PLUMBER SHOWS HOW SALES TAX PYRAMIDS

(Continued from Page 20)

person's brains and more time than I have so far given it to obtain a more satisfactory solution, but at time of writing I believe a set percentage without pyramiding should be made on every sale. Some have suggested that one tax only be collected and that from the manufacturer on his total sales; others have suggested that the manufacturer collect no sales tax but that a sales tax be collected on every other step of the sale from the wholesaler to the retailer.

PATTERNS FOR TEE JOINTS

(Continued from Page 19)

throat of cup joint will not require so much material as the heel owing to the sharper bend.

This is a thing for the workman to observe how much he should allow in order to have his lines straight and not run every way in his work.

If in brazing it is found that the spelter runs through, a ledge of clay can be pasted along the inside edge as shown, which is not always necessary, but at times, it is very serviceable.

The matter of putting in these tees and making suitable brazed joints is an an easy task, because it takes quite a bit of experience to know how to work the metal, and especially what must be observed and what must be avoided while brazing.

This is especially required so not to over-heat parts of the pipe when brazing, as that will make a brittle joint.

Most of this is knowledge that can be learned only by actual practice, and for that matter, it is no more or less than people working in factories learn how to do piece work, and do a neat and good job in suitable time.

ONTARIO INCORPORATIONS

Imperial Radiator Co. Ltd., head office Toronto, capital $500,000 to manufacture and deal in iron, copper, steel, brass and other metals and manufacture boilers, radiators, and heating apparatus of all kinds.

BIG FUTURE FOR ONTARIO'S IRON ORE

Government assistance in the development of a Canadian iron ore industry was urged in a resolution passed at Hon. Harry Mills' "iron" conference in Toronto, which was attended by 30 or 40 mining men, metallurgists, transportation men, engineers, etc. They also asked that the Federal and Provincial governments appoint a committee to conduct an inquiry and investigation into the commercial aspect of the situation. The opinions expressed, especially those of general manager J. D. Jones of the Algoma Steel Company, Saulte Ste. Marie, were very optimistic. Mr. Jones pointed out that the United States high-grade iron ores in the Marquette country were "petering out," and the United States government was preparing to develop low-grade ores.

Mr. Jones, in his statement, said he had calculated that he could produce pig iron from Canadian ores at $1.57 less per ton than he could from the United States ores. He would use 60 per cent. cintered siderite and 40 per cent. of magnetite. Given Canadian

New Goods of Interest to the Plumbing Trade

"SELFBLO" BLOW TORCH

A blow torch with a unique principle of operation is being placed on the general markets by the Hun-Lasher Co., Inc., of Lynn, Mass. This product is called the "Selfblo," the name being derived from the methods employed in using this torch. Attention is called to the two barrels by the manufacturers, and in describing the operation of this blow torch, it is stated that both these barrels are filled with denatured alcohol, and the touch of a lighted match to the wick end will result in the torch "blowing itself." The makers further claim that this torch will, in twenty seconds, give a 1,400 deg. flame that will run any solder. A counter display containing six torches is supplied by the above company. The Walkley Moncour Co., 416 St. James street, Montreal, are the Canadian representatives.

EMPIRE BRASS ENAMEL

The Empire Brass Enamel Co., are introducing to the trade an enamel for renewing brass beds, brass fixtures, radiators, door knobs, mouldings, picture frames and such materials where a brush brass finish is desired. The manufacturers point out that this enamel gives a hard permanent surface, dries quickly, and will also stand washing. It is made in Canada by the above firm at Kingston, Ont.

S. M. P. ROLL RIM SINK

A new white enamelled roll rim sink has been announced by the Sheet Metal Products Co., of Canada, Toronto. The manufacturers point out that this product combines strength with moderate weight. It is made from 16-gauge Armco iron, with two coats of a special grade enamel on the outside and three

coverings of same on the inside. Connections for 1½ in. lead pipe, and 1½ in. iron pipes are supplied with each sink. The measurement is eighteen inches by thirty inches, while the back is sixteen inches high. The makers further claim to have spent many years of effort to perfect this article before offering same to the trade.

GAS SHUT OFF VALVE.

An automatic low water shut off valve made especially for application to gas fired steam boilers is announced by the Atlas Valve Company, Newark, N. J. It is described as simple in operation, the working principle being as follows:

Referring to the illustration, the new device is the shaded portion at the right of the boiler and is virtually a "water column" made of pipe fittings and ordinary pipe with two enlarged portions. A vent is located at the top. Going downward first comes a tee, then a nipple, then an enlarged portion or chamber and then a pipe connecting the latter to another chamber which contains a diaphragm. This diaphragm controls the gas valve in the main gas supply pipe.

When filling the boiler the manufacturers state that the two vent cocks should be opened and the boiler filled until the water flows freely from both. Then close the vents and drain the water from the boiler down to the proper operating level.

The water does not drain out of the stand pipe and it will remain full. A constant pressure due to this head of water exists on top of the diaphragm. The upper enlarged portion of the "stand pipe" is provided for the purpose of furnishing an ample storage supply of water so that this pressure will remain constant, as otherwise it might vary due to possible fluctuations in the diaphragm in the enlarged portion below.

Another connection is made between the boiler and the "stand pipe" into the enlarged chamber beneath the diaphragm through a 1-4 in. galvanized pipe. This gives two water pressures acting on the diaphragm—the constant one from above and the variable one from below.

As the water level in the boiler lowers, the pressure beneath the diaphragm grows less and the difference in the pressure acting on the diaphragm becomes greater until at a predetermined point the gas supply is shut off. The point of shut off is usually at the lower limit of the gauge glass. Therefore, when the water level reaches the bottom of the gauge glass, the automatic valve shuts off the gas and keeps it shut off until the boiler is refilled to the proper operating level. In refilling it is not necessary to re-open the vents because the "stand pipe" is still full of water.

Many Important Market Developments

Rising Costs of Basic Materials Produces Upward Tendency on Numerous Manufactured Products While Seasonal Activity Also Assists in Firmer Market Tone—Keen Competition is Factor in Price Reductions on Other Plumbing Goods

DURING recent weeks the general trend of basic material prices has registered a distinct upward tendency, with several important advances having been announced on manufactured products. Additional increases on bar iron and steel, lead pipe and waste, traps and bends, offer a direct example of the prevailing movement which is expected to be reflected in many other channels. This development also constitutes a halt in the easier market tendency that has been more or less pronounced on sanitary and heating materials in general throughout the past fifteen to eighteen months, and indicates that further price variations are likely to be experienced before pre-war quotations can again govern the supply field. Although the prevailing firmness in price is in many instances considered to be of a temporary nature, yet such a movement at the same time is generally in keeping with the more conservative predictions expressed regarding the future trend of commodity quotations showing a gradual decline spread over a period of years, interposed here and there with upward market movements.

Throughout the year 1921 and also for the first few months of the present year, announcements of recessions and decline in plumbing market prices followed one another in rapid succession. As pointed out in a previous issue, the extent of these reductions were pointedly marked in a number of lines, while on some commodities several changes of this nature were recorded until stocks generally have been substantially liquidated and the confidence of the buyer in trade conditions had been once again restored to a more normal basis. The result of these more or less gradual changes has been a steady improvement in the volume of business recorded in both production and distributing circles, which in combination with a revival in the quantity and number of current purchases, has culminated in the general establishment of brisk activity throughout the trade with many apparent indications of a moderately successful season.

Keen competition for prevailing business has introduced some degree of unsettlement in the market for certain lines, but on the other hand, the improved demand for basic materials such as steel, pig iron, coke and metals, has brought about a much stronger tone in many directions, particularly manufactured steel products.

Factors in the Situation

Several causes are pointed out as contributing toward this slight upward turn in the average price of plumbing supplies, among them being the seasonal trade improvement usually experienced at this time of the year; the fact that the many previous reductions have been more forcibly brought to the attention of the buying public with a consequent enlarged purchasing movement on their part; the indirect reflection of the coal strike in prices on steel and iron which constitute an important part in the raw material for an extensive number of sanitary products, and also the recent budget revisions with the increased sales tax and its component developments. Building activities on a more generous scale have also assisted in producing an improved tone to the markets.

While price reductions on certain specific lines continue to become apparent, the number of such changes is noticeably smaller than heretofore with such revisions being principally of a minor character. On the other hand, increased quotations have been recently evident in such important fields as ingot metals scrap metals, scrap materials, bar iron products, galvanized and black sheets, as well as many kindred items which form the basic elements in plumbing and steam-fitting markets and are reflected in the future tendency on a much wider range of finished goods. Radiators and boilers, brass sheets, copper rods, and blue annealed sheets, are other lines recently included in the budget of higher prices, while ranged alongside are the numerous changes being put into effect by manufacturers and wholesalers who are going over their stocks and re-adjusting prices on same to take care of the advance in sales tax. It is stated that neither advances nor declines are expected to be of an extensive nature. The chief cause of this latter movement is attributed to instances where the sales tax was previously being absorbed by wholesalers in an effort to maintain uniform resale price levels; a policy which cannot now be retained in view of the extent to which this burden has been increased.

Minor Reductions on Some Lines

Reductions in price on other sanitary and heating lines, however, are expected to be evident from time to time, as illustrated by the recent declines on galvanized sinks, wash boilers, enameled ware products such as closet outfits, boiler tubes and asbestos sheathing. One wholesaler stated to Sanitary Engineer that in revising prices on some of their goods owing to the tariff and sales tax changes they had found that minor reductions could be effected which had been previously overlooked, while passing on the sales tax in other instances, showed similar instances where upward revisions were in order.

The opinion has frequently been expressed to Sanitary Engineer by both manufacturers and wholesalers, but particularly the latter, that market uncertainty is a thing to be strictly avoided, if possible. Experience during the past two years has illustrated the fact that price uncertainty on any product absorbs the confidence of the buyer to an alarming degree, this being generally applicable to the consumer element as well as the distributor and contractor. And while the future trend of prices remains more or less indefinite, yet the immediate seasonal quotation has recently been carefully established and adhered to in a large number of instances. The spreading of this policy has encouraged the trading in primary goods with confidence, instead of buying for immediate requirements only and chiefly relying on rush orders. The lessons of the past few seasons, however, have generally resulted in a cautious attitude being adopted by the large majority of sanitary engineers, which was described by one wholesaler as a creditable factor, for it enabled the dealer to survive the storms and successfully navigate his craft through the tempestuous seas of modern merchandising, wereas unrestricted buying in large quantities while bringing temporary trade to the manufacturer and distributor, in the end generally meant disaster in a business sense.

Lower Freights May Help

The movement to lower production costs has steadily progressed wherever possible in manufacturing circles, although it is more or less freely stated that lower wage costs, combined with easier freight rates would constitute a big step in this direction. The recent ten per cent. reduction in transportation costs, effective July 1, covering U. S. railroads, is taken in some quarters as indicative of the general tendency in this direction. On Canadian lines, current interest is attached to the lower rates on pig iron, billets, blooms, wire rods, scrap iron, and ores by seven and one-half per cent., effective August 1. The decline is generally considered of minor proportions, however, and some time must necessarily elapse before any easing of costs in this direction would be apparent in the finished manufactured article, and its extent and effect on individual products would naturally be of an extremely small character.

(Continued on Page 36)

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

Markets at a Glance

CURRENT price revisions on sanitary and heating materials are all increases, and represent the general firmer tendency in primary markets. Higher levels are announced on lead traps and bends, lead pipe and waste, bar iron and steel, and galvanized sheets.

Brisk activity is generally reported throughout the trade with prospects outside in building circles continuing to appear good for the balance of the season. Orders are not unusually large, but the seasonal movement is very fair and the aggregate makes a satisfactory showing.

A range is still noted in bar iron prices, but an upward revision to uniform levels is more or less expected to develop at any time, and with the announcement of higher prices at eastern markets, this reflects the unabated strength of the steel industry in the face of moderate trade at this season. Galvanized sheets also retain the firm position achieved during recent weeks, the loss of a cargo containing a goodly assignment of imported English sheets, coupled with the delayed deliveries from southern mills, being current market factors of some importance. Cotton waste prices are also on a stronger basis, while much unsettlement is evident regarding the future trend of quotations on ranges and furnaces for the coming season's trade, as costs of raw materials entering into the production of these goods show a decidedly upward movement.

A strong tendency is noted in lead products generally and other lines such as sheets and solders are considered likely to follow the advanced levels recorded last week on pipe and bends, if the prevailing strength is maintained in primary centres. Trading in scrap materials is still lacking in animation, but some signs of improvement are again appearing in ingot metals, notably copper and spelter.

Western market centres report a steady improvement in the volume of business, and while orders are still of a limited nature, the aggregate is considerably above that recorded this time last year. A cautious attitude is being generally adopted until the new crop is more or less assured. Practically all markets, however, show a firmer tone.

Montreal Markets

MONTREAL, July 13.—Lead pipe, waste, traps and bends, together with bar iron and bar steel, provide the feature market developments, price changes on all these products being in an upward direction. A firmer tone is noted in prevailing quotations on practically all markets, these including many building materials as well as sanitary and heating goods where basic materials such as foundry iron, coke and coal enter as elements required in production. A satisfactory volume of current trade is generally reported, the improvement recently evident in seasonal lines being maintained in distributing circles.

SCRAP MARKET QUIET WITH TRADING DULL

Montreal

There are no changes in the quotations of the scrap metal markets, and the lines are very dull. There is very little demand for scrap rubber and nonferrous metals. Average buying prices are as follows:

Automobile Tires	0 50
Rubber Shoes	0 02½
Yellow brass	0 05 to 0 06
Red brass	0 08¾
Light brass	0 04
Scrap zinc	0 03½
Lead, heavy	0 04¼
Lead, tea	0 02¼
Light copper	0 0½ to 0 09
Heavy copper	0 11
Wrought iron, R. Rd., No. 1 per gr. ton.	10 00
Malleable scrap (ton)	9 00
Pipe scrap (ton)	6 50
Heavy melting steel	9 50 to 10 00
No. 2 bashelling	3 00
Boiler plate	8 00
No. 1 machinery cast	20 00 to 21 00

WROUGHT PIPE PRICE STILL ON FIRM BASIS

Montreal.

There have been no changes on wrought pipe, although it is noticeable that there is a feeling that the prices are very firm. U. S. manufacturers are well booked up for some weeks in advance, but in view of the competition that they are in a position to give, it is not likely that Canadian manufacturers will risk U. S. competition by advancing prices at this time and be obliged to reduce them later.

STEEL PRICES HAVE ADVANCED TEN CENTS

Montreal.

An advance on iron and steel of 10c per 100 lbs. has been announced on July 11th. The indications for an advance have been evident, but manufacturers state that they have been reluctant to make any changes that might discourage buyers from placing orders. Due in some respects to the coal and rail strikes in the U. S. the markets have been firming up until action was taken to-day in the form of an increase. The demand has improved, and new quotations are as follows:

IRON AND STEEL—	
Common bar iron, 100 lbs.	3 05
Refined iron	4 45
Irish finish machinery steel	3 10
Mild steel	3 05
Single reeled machinery steel	5 15
Band steel	3 40
Spring steel	4 65
Sleighshoe steel	3 05
Tire steel	3 25
Harrow tooth steel, per lb.	3 20
Mining tool steel, per lb.	0 20½
Toe caulk steel	3 95
Black Diamond tool and cast steel	

NOTE—Refined iron is approximately $1.50 per 100 lbs. over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs extra.

ACTIVE TRADE IN RADIATORS AND BOILERS

Montreal

The present trade in water and steam heating systems continues to be fairly active, and the amount of increased building going on at the present time, particularly in the large centres, indicates that there should even be an improvement in the volume of business. There has been no further

change in prices, which are as follows:

RADIATORS AND BOILERS—

Radiator list prices are for 1, 2, 3, 4 and 5,-column radiators per square foot.

45 in. to 38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in, $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60. Discount 59% for hot water and 60 per cent. for steam.

Wall Radiators—5 ft. $1.15; 6 ft., $1.10; 7 ft., $1.05; 9 ft., $1.05; 12 ft. $1.05. Discount 56%

Boilers—Round hot water boilers, low base only (high base discontinued); sizes from 0 to 10, 64% off list.

Square or sectional hot water or steam boilers, 15-in., 20 per cent.

For Ontario Government trimmings add 5 per cent.

Square or sectional steam boilerfs, 19 in. to 36 in., 20 per cent.

Square or sectional steam boilers, 19 in. to 36 in., 20 per cent. Ontario Govt. trimmings, 10 per cent. discount.

Round steam boilers, standard trimmings, 28 per cent. off. Ontario Government trimmings, 25 per cent.

All prices f.o.b. Toronto, Montreal, Guelph, Hamilton, St. Catharines or Brantford.

ACUTE SHORTAGE OF GALVANIZED SHEETS

Montreal.

The loss of the S. S. Orthea in the St. Lawrence river with a large consignment of galvanized iron, tin plates, etc., will be a severe blow to the trade as buyers were looking forward to replenishing their stocks from the cargo of this steamer. Now there is a regular famine for standard sizes, as distributors and manufacturers are actually out of some of them. It will be impossible to procure any further stocks until the next boat arrives, which will be the latter part of this month.

The situation on Canada plate is easier, as stocks are more ample and there is not the demand just now that there will be later on in the season. Prices have, however, remained unchanged, as follows:

BLACK SHEETS—		
10 gauge, base	4 00	4 50
12 gauge	4 10	4 60
14 gauge	4 20	4 70
16 gauge	4 30	4 80
18-20 gauge	4 55	5 05
22-24 gauge	4 60	5 20
26 gauge	4 65	5 25
28 gauge	4 75	5 35
Sheets, 36" wide, 10c. per 100 lbs. extra.		
GALVANIZED SHEETS—		
Queen's Head—		
28 gauge	6 75	7 25
26 gauge	6 50	7 00
24 gauge	5 90	6 40
22 gauge	5 55	6 05
18-20 gauge	4 85	5 35
Other Brands—		
10¾	6 50	7 00
28 U. S. gauge	6 10	6 60
26 U. S. gauge	5 80	6 30
24 gauge	5 65	6 15
22 gauge	5 65	6 00
16 gauge	5 35	5 85

Theses prices are for full bundles, an extra charge of from 25c to 35c is made for broken lots. Extra for sheets 3 ft. wide, 28 gauge and 10¾ oz., 20 cts. per 100 lbs. Further extra for sheets 4 ft. wide, according to gauge.

TIN PLATE—Coke	
20 x 28 x 100 lb. basis	13 50
20 x 28 IC, 112s	14 00
20 x 28 IX, 112s	16 00
20 x 28 IXX, 56s	9 25
20 x 28 IXXX, 56s	10 00
TERNE— PLATE—	
20 x 28 IC, 112s	14 50
CANADA PLATE—	
Dull, 52s	5 25
Dull 60s	5 35
Blued, 52s	5 50
Blued 60s	5 60
Welsh, polished, 52s	7 25
Welsh, polished, 60s	7 50
Galvanized, 52s	5 50
Galvanized, 60s	8 00

SUSTAINED ACTIVITY IN CORRUGATED SHEETS

Montreal

The trade in corrugated sheets is naturally affected seriously by the loss of the S. S. Orthea with her cargo of galvanized sheets, tin plate, etc. As a result of the acute shortage in stand sizes, manufacturers are showing extreme caution in booking new business in view of the amount of orders already on hand. This situation is causing prices to hold up very firm, and it would not be surprising if advances were made, although at present the prices are unchanged as follows:

CORRUGATED SHEETS—	Per 100 sq. ft.
No. 28 gauge	6 50
No. 26 gauge	7 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50

Less 10 per cent.

Lighter than 24 gauge and wider than 27 inches, 75c. a square extra.

FAIR TRADE IN COMPRESSION GOODS

Montreal

The stronger tone in copper and other raw materials has had the tendency of stiffening this market, and there is some talk of changes in prices in the near future. The volume of business taken has been very fair, and the indications are that this will continue to improve. Quotations are unchanged a the following discounts:

Compression work, standard	45%
Fuller work, standard	30%
Quick opening compression bibbs	43%
Bath cocks, quick opening	41%
Bath cocks, compression	41%
Basin cocks, quick opening	46%
Flatway stop and waste cocks, standard	54%
Roundway stop and waste cocks, st'nd'rd	46%
Brass steam cocks, standard, ¼ in.	50%
Radiator valves, standard	58%
Do., removable discs	58%
Globe, angle and check valves, standard	25%
Gate or straightway	25%
Emco globe valves	33%
Emco check valves	33%
Jenkins globe, angle, check and swing check	19%
Jenkins gate or straightway	25%
Jenkins iron body, globe and angle	15%
Jenkins iron body, gate	33%
N.P. "P" and "S" traps	40%

SEASONAL DEMAND FOR CLOSET COMBINATIONS

Montreal

At the present time there is a fair demand for these products caused by the ever increasing amount of building operations that are now in progress. There have been no changes in quotations, which are as follows:

CLOSET COMBINATIONS—	each
Closet, standard low down outfit	$25 00
Do., post hinge seat	26 00
Do., oak vitro, back strip seat	27 75
Do., oak vitro, post hinge seat	28 40
Do., china tank and back strip seat	28 50
Do., china tank post hinge seat	29 50
Do., vitro white with post hinge seat	30 75
Reversible trap bowl, less spud	11 25
Wash down bowl, less spud	10 00
Richelieu bowl	9 00
Siphon jet bowl	16 25
Extra for spud	0 60
Add for ⅜ in. valve on supply pipe	1 25
Add for bar hinge	No extra
Deduct for supply pipe	0 80
Deduct for floor hinge	0 60
Wood strip seat and cover	3 05
Post hinge seat and cover	4 25
Oak or oak vitro tank, with fittings, less seat	14 25
White vitro, vitreous china or enameled iron tank, with fittings, flush elbow and supplies, less seat	18 50

STEADY TRADE IN ENAMELLED WARE

Montreal.

There is no change evident in the enamelled ware market, and there continues to be a steady volume of business. There has been a considerable increase in building operations in the large centres that has the natural effect of creating a very fair demand for these products. There have been no changes in list prices and discounts, which are as follows:

ENAMELED WARE—			
Sinks, roll rim—			
18 x 30			$23 00
Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$ 7 50	$ 7 40	$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in wide			51 40
Bath tubs, 5½ feet			57 10
Lavatories—			
17x19 in. Apron F139 or P4045			15 30
18x24 in. Apron F154 or P3845 or P3847			23 60
18x21 in. Apron F169 or P4205			17 60
17x19 in. Roll rim. F241 or P4345			12 60

Less 33 1-3 per cent.

FIRM PRICE TREND IN COTTON WASTES

Montreal

Prices on cotton waste are somewhat firmer, and due not so much to the local demand but to the fact that American prices have recently advanced. It would not be surprising, therefore, if Canadian prices were to be advanced in the very near future. Unchanged quotations are as follows:

COTTON WASTE—Cream polishing, 18c. per lb. White—XXX extra, 16c.; XX grand, 15c., XLCR, 14c.; X Empire, 13c.; X press, 11½c.

Colored—Fancy, 13½c; Lion, 12c; Popular, 9c; Keen, 7½c.

Wool Packing—Arrow, 24c.; Axle, 20c.; Anvil, 16c.

Dominion Wipers—White cotton, 20c; colored cotton, 14c.

ONLY MODERATE TRADE IN PIPE FITTINGS

Montreal

The trade in pipe fittings can be reported as only fair. Small orders are being placed to take care of immediate requirements only, and there have been no changes in prices. Quotations are as follows:

PIPE FITTINGS—	
Cast iron fitting	30%
Plugs, cast iron	30%
Do., solid	30%
Do., countersunk	30%
Bushings, cast	30%
Do., malleable	32%
Unions	32%
Flanged unions	47%
Flanged fittings	30%
Dart unions, black, 33	30%
Dart unions, galv. 33	1-3%
Nipples, 1-8 to 4", close and short	13%
Do., long	60%
Do., 4½ to 8", close and short	65%
Do., long	50%
Couplings, 4" and under	55%
Do., 4½" and larger	30%
Malleable Fittings—	10%

Piece list effective June 1st, 1922. Discount 70-5 per cent.

ADVANCE IN LEAD PIPE AND WASTE

Montreal.

The firm tone in the lead markets is reflected in some advances this week. The demand is steady being maintained by the construction work that is under way during the summer months. Other

lines are unchanged. Quotations are as follows:

LEAD AND ZINC PRODUCTS—	
Up to 2"	13 00
2" to 8"	14 00
8" and over	15 00
Lead waste, per 100 lbs.	14 00
Note—Lead pipe is subject to a discount of	10%
Lead traps and bends	15%
Lead wool, lb.	0 13½
Lead sheets, 2½ lbs., sq. ft. lb.	0 10
Lead sheets, 3 to 3½ lbs., sq. ft., lb.	0 09¾
Do., 4 to 8 lbs. sq. ft., lb.	0 09
Cut sheets, ¼c. lb. extra and cut sheets to size, ¾c. lb. extra.	
Solder, guaranteed, lb.	0 26½
Do., strictly, lb.	0 24½
Do., commercial, lb.	0 21½
Do., wiping, lb.	0 22½
Do., wire, lb.	0 35
Zinc, sheets, casks	0 11
Do., broken lots	0 11½

TROUGH AND PIPE CONTINUE ACTIVE

Montreal

The demand for eavestrough, conductor pipes, elbows and sundry lines continues to be sustained, and the records show a higher buying movement. In fact any lines in which galvanized iron is used are very active, and will undoubtedly continue to be so. The prices are unchanged as follows:

EAVESTROUGH:

O. G. round and half round, per 100 ft. 8 in., $16.90; 10 in., $18.70; 12 in., $22.20; 15 in., $29.80; 18 in., $37.80.

O.G. Square bead, per 100 ft.: 8 in., $15.90; 10 in., $17.70; 12 in., $21.20; 15 in., $28.80; 18 in., $36.80.

Discount 70|10 per cent.

CONDUCTOR PIPE—Round, Plain and Corrugated, per 100 ft.: 2 in., $18.40; 3 in., $22.30; 4 in., $29.60; 5 in. $40.00; 6 in, $49.00; 6 in., $49.00.

Discount 70|10 per cent.

CONDUCTOR ELBOWS—

Plain or corrugated, price per doz.

2 in., $5.25; 3 in., $6.00; 4 in., $10.50; 5 in., $24.00; 6 in., $29.00.

Discount 60 per cent.

LITTLE VARIATION IN RANGE BOILERS

Montreal

The prices on range boilers remain unchanged since last reported, quotations being 50 per cent. off standard list prices. The amount of building that is going on in particularly the larger centres is causing a very fair demand for this time of the year. The following are the list prices and discounts:

RANGE BOILERS:—	
5 Gallon	$13.50
12 "	14.00
18 "	15.00
25 "	16.50
30 "	17.50
35 "	20.50
40 "	22.75
52 "	38.00
66 "	60.75
82 "	74.00
100 "	103.00
120 "	117.00
144 "	164.00
168 "	187.00
192 "	210.00

Discounts, Standard weight, 50 per cent.
Extra Heavy, 40 per cent.

FIRMER TONE IN INGOT METAL MARKET

Montreal.

The metal markets have held very well considering the disturbed conditions in the United States, and also the possibilities of financial trouble in Germany. While there are no particular advances to report there is certainly no weakness in any of the lines, and if present unsettled conditions can be adjusted there is every possibility of higher prices this fall.

TIN.—This is slightly higher in London, although for reasons well known, no sustained advance is looked for just now. Consumption in the United States is naturall affected by labor troubles. Buying is comparatively light and the local market is quiet at 35c.

COPPER.—The tone in the United States is quite firm and producers are not pressing sales. In fact there is somewhat of a scarcity of available metal for the next month or two. Export business is very well maintained, although naturally this is susceptible to events in Europe. The local market is slightly higher at 17¼c for castings and 17¾c for electro.

SPELTER.—The American market is quite firm and it is difficult to buy at $5.50 East St. Louis basis to-day. This is the highest figure touched since 1920, and there is every indication of a further advance. London market is quiet and it remains to be seen what effect the financial difficulties will have on holders of German and Belgium speiter.

LEAD.—This is the most uncertain metal to-day, as it is undoubtedly higher than other lines in proportion, while it is fairly firm at the moment lower prices in the next few months would not be surprising. The consumption, however, has remained pretty steady, which may act as a check to any decline in prices. The local market is quiet with the price unchanged at 7c.

ANTIMONY.—This has had quite a reaction in New York during the past month, and prices are now at a more attractive level, and a recovery in the near future would not be surprising. The local market is unchanged at 6½c for china and 7½c for English.

ALUMINUM.—The market remains quiet. There is little demand and the price is unchanged at 24 cents.

Toronto Markets

TORONTO, July 13.—One feature of the current market developments on sanitary and heating materials is the fact that all current changes record an upward tendency. Among the increases announced are higher quotations on lead traps and bends, lead pipe and waste, while bar products in iron and steel have been advanced fifteen cents per 100 lbs. Higher price levels are also recorded by certain jobbing houses on galvanized sheets.

Much unsettlement is evident regarding the future trend of quotations on stoves, ranges and furnaces, the recent increases in raw material costs not only having rendered very remote any lowering of prices on these products for next season's trade, but having considerably firmed up prevailing levels with future advances considered quite possible in many quarters.

HIGHER PRICE LEVELS ON GALVANIZED SHEETS

Toronto

Certain jobbing houses record another advance in galvanized sheet prices, and are now quoting the higher levels of $6.65 per cwt. on 28 gauge, and $7.10 on 10¾ oz.

BAR PRODUCT PRICES ADVANCE FIFTEEN CENTS

Toronto.

Advanced prices of fifteen cents per 10 lbs. are announced in certain quarters on bar iron and bar steel, this upward trend having been outlined in the last issue of Sanitary Engineer. The change in this direction, however, has not been uniformly adopted on the local market, and until the higher levels become general, therefore, a range is noted in the list quotations given below. This increase is attributed to the unsettled conditions in the steel industry in general and especially on southern primary markets where the coal strike situation is now being more keenly felt in production circles. Although the reduction in freight rates is expected to offset the upward tendency in costs to some extent, distributors state that this is not expected to be immediately reflected in easier prices. Ores, pig iron and similar basic materials are affected in the revised ruling on transportation charges, and this movement may reflect in future quotations on bar products. At present, however, prevailing average prices follow:

IRON AND STEEL—		
Mild steel bars, base	3 00	3 15
Mild steel bands, 3-16 in. base	3 50	3 65
Bar iron base	3 00	3 15
Angle iron base	3 10	3 25
Horseshoe iron		3 75
Tire steel	3 25	3 35
Spring steel	7 00	8 00
Toe caulk iron		4 00
Hoop steel		4 00
Norway iron		12 50
Sleigh shoe steel		3 00
Crucible cast sheet steel		28.00
Mining Drill steel		18.50
Cast tool steel, high grade		30 00
Do., do., Medium		18.00

LEAD PIPE, TRAPS AND BENDS HIGHER IN PRICE

Toronto

Reflecting the firmness in the market of lead products generally is the current advance of one cent per lb. in the list prices on lead pipe and waste. Through a revision in the discount, a similar upward price change has been made effective on lead traps and bends, the new level being fifteen off, compared with the previous discount of 17½ per cent.

(Continued on Page 32)

MUELLER

Compression Stop Cocks

Beauty of design—freedom from sharp angles and creases — and the ease with which they can be kept clean—make MUELLER Compression Stop Cocks especially desirable for residence plumbing.

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TORONTO MARKETS

(Continued from Page 30)

Other products in this class generally remain unchanged, although it is noted that certain jobbing houses have also increased solder prices one to one and a half cents per lb. all through the list. This development, however, has not been generally recorded on the local markets. The prevailing demand for these goods is described as good, and seasonal activity prevails at the following average quotations:

LEAD AND ZINC GOODS—

Lead pipe, list, per lb.	0 13
Lead, waste pipe, list, per lb.	0 14
Do., over 8 in., list, per lb.	0 15
Lead pipe is subject to a discount of 10 per cent.	
Lead traps and bends less, 15 per cent.	
Lead sheets, 4 to 6lbs., sq. ft. in rolls, lb.	0.09
Cut sheets, ½c to ¾c lb. extra and cut sheets to size, 1c lb. extra.	
Solder wire, per lb.	0 30
Do., commercial, lb.	0 22½
Do., strictly, lb.	0 21
Do., guaranteed, lb.	0 24
Do., wiping, lb.	0 21
Zinc sheets, per lb.	0 09 — 0 10

PRODUCTION COSTS RISE ON ENAMELED WARE

Toronto

Quotations on enameled ware products show indications of a firmer trend in the primary markets, and while some shading of nominal quotations has been reported in certain quarters during recent weeks, this condition is now stated to have been materially improved. Rising production costs, especially such elements as foundry iron, coke, coal and similar materials, are pointed to by manufacturers as tending to add further strength to present price levels. The reduction in freight rates on these basic lines is of a very minor character, and while this development is in the right direction, it is claimed that such a change is almost lost sight of in the general upward movement. The call for enameled products is described as good, with seasonal activity continuing in construction circles. Unchanged quotations follow:

ENAMELED WARE—

Enameled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.	51 40
Do., 5½ ft.	57 10
Lavatories—	
17x10" Apron F139 or P4045	15 30
18x24" Apron F154 or P3845 or P3847	23 60
18x21" Apron F169 or P4205	17 60
18x21" Roll Rim, F197, F199 or P4655-6	15 40
17x19" Roll Rim, F241 or P4345	12 60
Sinks, Roll Rim, 16x24 in.	18 10
Do., 18 x 30 in.	23 00
Do., 20 x 30 in.	24 70

Sinks, Flat Rim—	3 only	2 only	1 only
16x24	$7 60	$7 70	$7 80
18x30	8 50	8 60	8 70
20x30	9 70	9 80	9 90

Above prices, list, less 33 1-3 per cent.

All steel enamel baths, 4 and 4½ ft	$14 00
Do., 5 ft.	15 00
Do. 5½ ft.	16 75

Steel bath quotations are net.

BOILER TUBES NEEDED IN HEATING REPAIRS

Toronto.

Local distributors of boiler tubes point towards the firmness in the primary steel markets and the fact that southern producers have recently increased the quotations on tubing, as indicating a similar upward movement in the near future on domestic boiler tube prices. Current trade is also described as on a slightly improved basis, there being a certain amount of replacement and repair work to various heating plants, etc., going on during the summer months. Prevailing price levels, however, generally remain unchanged at the following average list, with business in these products stated as good for this season of the year:

BOILER TUBES—

	Seamless	Lapweld
1 inch	18 00	.....
1-¼ inch	20 00	.....
1-½ inch	19 00	.....
1-¾ inch	20 00	.....
2 inch	19 00	16 00
2-¼ inch	22 00	19 00
2-½ inch	25 00	19 00
3 inch	29 00	24 00
3-½ inch	34 00	26 80
4 inch	43 00	34 25

CLOSET TRADE IN SEASONAL PROPORTIONS

Toronto.

Distributors report that trade in closet outfits and fixtures continues on a much improved basis, and with the general activity in building and construction circles, prospects continue fairly bright for the balance of the season. Quotations are generally on a much steadier basis since the last general price revision was announced, and remain at unchanged levels, which follow:

CLOSET COMBINATIONS, low down	each
Closet, standard outfit, oak	26 00
Do., with post hinge seat	26 50
Do., mahogany Vitro or Pussyfoot with mahogany post hinge seat and cover	28 75
Do., vitreous china, with oak post hinge seat and cover	28 75
Do., vitreous china, with mahogany post hinge seat and cover	29 00
Do., white Vitro or Pussyfoot, with oak post hinge seat and cover	28 75
Do., white Vitro or Pussyfoot with mahogany post hinge, seat and cover	29 00
Do., enamelled iron tank with oak post hinge seat and cover	28 75
Do., enamelled iron tank with mahogany post hinge seat and cover	29 00
Additions or reductions to above:	
Add for reverse trap bowl	1 50
Add for syphon jet bowl	7 00
For ⅜ in. valve on supply pipe	1 50
Deduct for supply pipe	0 60
Deduct for floor flange and bolts	0 60
CLOSET BOWLS—	
Washdown bowl less spud	10 00
Reverse trap bowl, less spud	12 10
Syphon jet bowl, less spud	17 00
"Richelieu" bowl	10 50
CLOSET TANKS, low down or Pussyfoot tank, with fittings, less seat	13 10
White Vitro or Pussyfoot tank with fittings, flush elbow and supply	15 65
Vitreous china tank with fittings, flush elbow and supply	18 00
Enamelled iron tank with fittings, flush elbow and supply	18 00
CLOSET SEATS—	
Oak post hinge seat and cover	4 15
Oak wood strip seat and cover	3 [illegible]
Mahogany finish post hinge seat and cover	4 35

CONTINUED ACTIVITY IN TROUGH AND PIPE

Toronto

Manufacturers and distributors of eavestrough, conductor pipe and similar products report general brisk activity, with good prospects for a record volume of trade in these lines if the present movement continues for the balance of the season. Building activities on a more extensive scale than in the past few years have undoubtedly assisted in this direction. Prevailing price levels continue firm, but no changes have been announced. It was thought at one time that quotations would be revised upward, but while prices are reported as steady, no variations have been noted. The strength apparent in the steel industry and especially on such flat sheet products that enter into the production of trough and piping, undoubtedly contributes toward the present undertone. Current quotations follow:

TROUGH EAVE—

O. G. Square Bead and half round. Size in girth	
8 in.	15 90
10 in.	17 70
12 in.	21 20
15 in.	28 80
18 in.	36 50

Less 70 and 10 per cent.

PIPE (CONDUCTOR)—

Plain, round or corrugated.

Per 100 ft. in 10 ft. lengths.	
2 in., in 10 ft. lengths, list	18 40
3 in., in 10 ft. lengths, list	22 30
4 in., in 10 ft. lengths, list	29 60
5 in., in 10 ft. lengths, list	40 00
6 in., in 10 ft. lengths	49 00

Less 70-10 per cent.

ELBOWS (CONDUCTOR)—

2 inch, list	5 25
3 inch, list	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00

Less 60 per cent.

PIPE FITTINGS ON STEADIER PRICE LEVEL

Toronto.

The movement on pipe fittings continues in active proportion to the brisk seasonal call for building materials in general. As a consequence of the improvement recently noted in these products, prices have remained on a much steadier basis, and are unchanged at prevailing levels. A general note of firmness has now developed throughout practically all markets where the basic materials include ores, foundry iron, coke, coal, and these primary markets are thus affected more or less directly by elements such as the coal strike and similar tendencies. Business is reported as distinctly better by both manufacturers and distributors. Following are current discounts:

PIPE FITTINGS—	Per cent.
Cast iron fittings	30
Plugs, cast iron	30
Do., solid	30
Do., countersunk	30
Bushings, malle.	32
Do., cast	32
Unions, ¼ in. to 2 in.	40
Do., ⅛ in., 2¼ to 4 in.	47
Flanged unions, std.	30
Flanged fittings	30
Dart unions, blk., ¼ to 2 in.	33½
Do., ⅛ in., 2¼ to 4 in.	23
Do., galvd., add to black	30
Nipples, blk., and galvd. ⅛ to 4 in. close and short	60
Do., 4½ in. and larger	50
Do., long, ⅛ in. to 4 in.	65
Do., 4½ in. and larger	55
Do., running thread	40
Couplings, 4 in. and under	30
Do., 4½ in. and larger	10

MALLEABLE FITTINGS—

New piece list, effective June 1, 1922. Discounts, 70 and 5 per cent.

FIRM TONE RECORDED IN COPPER PRODUCTS

Toronto

Brass and copper products such as sheets, rods and tubing, remain at the

(Continued on Page 34)

Luxury and Permanence in a Canadian Solid Vitreous Lavatory

Plate 672-P

The Lavatory and Pedestal pictured above are each a solid piece of hard-burned all-clay ware, vitreous through and through, with a beautiful, live-white, deep, clear, lustrous glaze surface, which lacks affinity for dirt or germs and is as easily kept clean as a china plate. There is no metal in either Lavatory or Pedestal and the glaze being inseparable from the body of the ware cannot chip nor discolor.

There is luxury to be realized from the gentle smoothness, the utter cleanliness and unqualified sanitary qualities of this all-clay vitreous fixture. In addition, its substantial weight, its dense non-absorbent texture and unchanging appearance will yield undiminished satisfaction after years of use.

Design No. 672 is made in three useful sizes—20x24, 22x28 and 24x30 and in addition to being furnished with Pedestal as shown can be supplied with single leg, two legs, or for metal frame support.

CANADIAN POTTERIES
LIMITED

SAINT JOHNS
QUEBEC

Sales handled exclusively through recognized jobbing houses.

TORONTO MARKETS

(Continued from Page 32)

recently revised quotations, and while certain fluctuations have been recorded on primary copper markets, such variations are described as not being of sufficient extent to be reflected in the prices on the finished lines, although the changes on virgin metals are basic market factors. In this connection it is noted that copper is inclined to firm up again, and southern quotations are steady to firm. There is a fair demand recorded for brass and copper goods locally, with the outlook in this industry having been much improved during recent weeks. Following are unchanged quotations:

BRASS—	
Sheets base, per lb.	0 22
Rods, base, per lb.	0 19
Tubing, base, per lb.	0 25
COPPER—	
Rods, base, per lb.	0 28
Soft sheets, plain, 1 oz. and heavier, lb.	0 29
Do., plain tinned, 16 oz. and heavier, per lb	0 36
Do., polished, and tinned, 16 oz. and heavier, lb.	0 41
Tubing	0 29

FAIRLY GOOD SEASON RECORDED FOR CEMENT

Toronto

A brisk demand for cement is now generally reported, with improvement having been noted for export requirements of this product. The domestic market records a moderate degree of activity, but lack of road making on a large scale has tended to restrict what might otherwise have been an extensive call for cement. Heavy construction work requiring large quantities of cement is also more or less spasmodic. However, producers report a fairly active season, with production around fifty per cent. of capacity, as compared with 40 per cent. during the year 1921. Following are unchanged price levels:

CEMENT—	Toronto.
Car load lots.	
Per barrel, delivered	$3.75
Less car lots.	
Per barrel, f.o.b. yard	4 40
Per barrel, delivered	4 60

Single bags, $1.15 each; 4 bags to barrel.
Extra charge of $1.50 per load on less than 24 bag lots.
Rebate of 20 cents for empty sacks.

BRISK TRADE NOW EVIDENT IN RADIATORS

Toronto.

The improved outlook for radiators and boilers is steadily materializing, manufacturers and distributors of these products reporting the current movement as being well up to expectations. Activity in construction work is naturally the keynote to the general situation, and while many buildings have not yet reached the stage where radiators are required, the volume of inquiries indicate that increased business is in the offing. As the volume of building scheduled during the coming months is of much larger proportions than that recorded last year, a better season for radiators and boilers is therefore naturally anticipated. Discounts and list prices on these products remain at the revisions recently quoted with the undertone described as firm, in view of the current demand coupled with a general stiffening in practically all manufactured steel products.

RADIATORS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60.

Discount on 2, 3, 4 and 5 column standard sizes, 50% for water and 60% for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 51% for water and 56% for steam.

Discounts on 1-column hospital size, water 33%; steam 34%.

Wall radiators—5 ft. $1.15; 6 ft. $1.10; 7 ft. $1.05; 9 ft. $1.05; 12 ft., $1.05. Discount 56%.

BOILERS—

Water:
Round 64% off list. Square 15%. off list.
Steam:
Round 28% off list; Square 15%. off list.

FLUCTUATIONS IN RAW COTTON AFFECT WASTES

Toronto.

Fluctuations in the raw cotton markets continue to reflect a more or less unsettled feeling in all cotton products, and while this trend is stated to be a strong factor in cotton wastes, yet the conditions in primary centres are referred to as the ultimate basis of price developments. Quotations on cotton wastes, however, are at present remaining at the revised Spring levels, and trade is described as generally satisfactory for the present season of the year. When compared with last season, a brighter market is recorded, although one distributor pointed out that it would indeed be a dull season which failed to improve over that of twelve months ago. Following are current prices on both white and colored wastes:

COTTON WASTES—	
Cream, polishing	0 18
White, XXX	0 18
XX	0 16
X	0 15
XC	0 14
XXX, extra	0 16
XX, grand	0 15
XLCR	0 14
X, Empire	0 13
X press	0 11½
Colored, No. 1	0 13
No. 17	0 12
No. 1A	0 11
No. 1B	0 10
Fancy	0 13½
Lion	0 12
Standard	0 10½
Popular	0 09
Keen	0 07½

Above lines subject to trade discount for quantity.

PRICES ON CORRUGATED SHEETS CONTINUE FIRM

Toronto

The firmness in corrugated sheets which has been outlined in recent market reports, continues to remain strongly in evidence. A brisk call is experienced for these products at this season of the year, and with the higher prices now effective on flat galvanized sheets, current quotations on corrugated are described as very firm with a decided tendency to higher levels. As a matter of fact, the gradual elimination of price shading in this market was stated by one local distributor as technically amounting to an advance. This is generally in keeping with the trend on other manufactured steel lines. Following are unchanged prevailing quotations:

CORRUGATED SHEETS—	Per 100 Sq. Ft.
No. 28 gauge	$6 50
No. 26 gauge	7 00
No. 26, U. S. gauge	8 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50

Less 10 per cent.
Lighter than 24 gauge and wider than 27 inches, 75c. per square extra.

IMPROVED TRADING NOTED IN COMPRESSION GOODS

Toronto.

Current trading in compression goods is stated to be somewhat upon an improved scale, and while certain distributors describe the present situation as just fair, others report the volume of trade in these products to be up to expectations. Little variation in price levels has been recorded during recent weeks, quotations remaining practically steady at the last revisions. Virgin metals showed a distinct firming up a few weeks ago owing to increased interest, but it is noted that a re-action in this respect has now been recorded. These movements, however, are stated as being of a minor character as far as the finished products are concerned, manufacturers buying in large quantities and a certain period in advance. Prevailing discounts follow:

VALVES—	Per cent.
Compression work, standard	45
Fuller work, standard	30
Bath cocks, compression	41
Do., Fuller	25
Flatway stop and wastecocks, stand'd	54
Roundway stop and waste cocks std.	46
Brass steam cocks, standard ½" to 2"	50
Do., 2½" to 3"	43
Globe, angle and check valves, std.	25
Mueller globe, angle and check	25
Mueller composition disc steam valves	33
J.M.T. valves, screwed	20|10
J.M.T. gate valves, screwed	25|10
Jenkins gate or straightway, screwed	25|10
Jenkins globe, screwed	19|10
Radiator valves, standard	58
Do., removable disc	58
Emco, J. D., rad. valves, screwed	33
Emco swing check, ⅜" and ½"	40
Do., other sizes	33
Webster gate valves, screwed	33
Emco globe valves, std.	25
Emco globe valves, J.D., screwed	33
Basin Cocks—	
No. 0 and 1 Fuller pattern	30
Quick opening No. 3633	50
No. 3623, plain or index handle	34

SLIGHTLY BETTER TONE IN ASBESTOS MARKET

Toronto

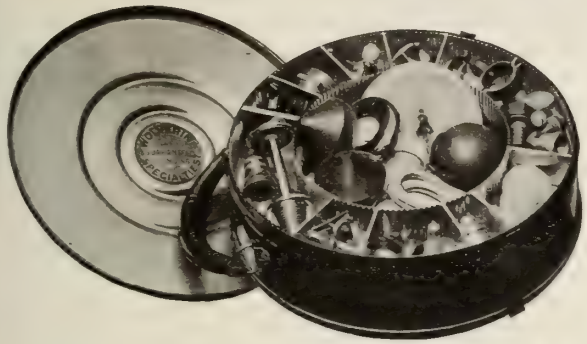
Current business in asbestos products is stated as slightly improving during recent weeks, due to the improved demand resultant upon building activities. The total volume of trade, however, is described in certain quarters as somewhat disappointing, because of the restricted commercial construction. Quotations remain at the recently revised levels, the following discounts representing the average local levels:

ASBESTOS PRODUCTS—

Pipe Covering—
Air cell, 4ply — 60 per cent. off list.
Air cell, 3 ply — 65 per cent. off list.
Air cell, 2 ply — 67½% off standard list.
Boiler Covering — $1.50 per bag.
Asbestos Sheathing — $6.75 per 100 lbs.

(Continued on Page 36)

Wolverine Specialty Case Will Get Your Man In Right When He Lands At The Job



A steel case complete with leather handle — 24 small and one large separate and distinct compartment for carrying complete assortment of washers, plugs, tank balls, screws, etc.

Price $7.00 delivered.

Size—Diam., 12 inches—Depth, 4½ inches.

Saves Time—Prevents Material Losses Increases Sales and Profits

WOLVERINE, LTD.
76 Nelson St., Toronto, Ont.

Forward prepaid.....Specialty Cases.

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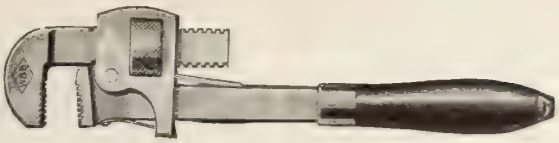
Sign and Mail Now—You Need One.



Choose The Right Tool

You can't expect a cheap, inefficient wrench to hold and turn rusted pipe or fittings. It's bound to slip or break.

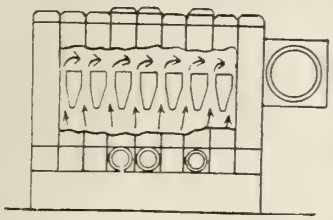
WILLIAMS' STILLSON WRENCH is dependable; it is made for heavy duty. Drop-forged from special steel, carefully hardened and tempered, its sturdy strength is proof against the knocks and strains of hard service. The tough teeth retain their sharpness; they "bite" instantly, yet release readily.

For grip, power and endurance, choose Williams' Stillson. Wood and Steel Handle patterns—eight sizes, 6 to 48 inches. Made in Canada.

J. H. WILLIAMS & CO., LIMITED

"The Wrench People"

77 Thorold Rd., St. Catharines, Ontario



One Flue Opening or Many ?

Many sectional boilers, you know, are made with one flue opening at the rear of the fire box. This draws the fire to the rear, leaving the front sections but partially effective.

In Burnham Boilers the flue openings are between each section, so that an equal amount of heat continually reaches each section.

Write for complete information.

Lord & Burnham Co. Limited of Canada

(Boiler Department)

Harbor Com. Bldg. Toronto.

Burnham Cosy Comfort Heat

Factory—St. Catharines, Ontario.

Quality The Beaton and Cadwell Mfg Co New Britain Conn *Service*

The Greatest Value Obtainable in Ceiling Plate

TOP VIEW
No. 10

Our No. 10 Split Ceiling Plate can be attached to mains and risers at the very last, and is not exposed during completion of a building on the floors, thereby making an attractive finish. Made in all sizes from 1-4 inch to 6 inches inclusive

The No. 10-A Narrow Flange Plate is a steel hinged plate flange 3-4 inch wide. Highly finished. Especially designed for [illegible] Made in sizes from 1-2 to 2 inches inclusive. Write for catalogue showing our complete line of specialties.

GEM NO. 4 AUTOMATIC AIR VALVE

The best brass possible to obtain is used and greatly preserved against corrosion from plating acids because they are nickel plated before being assembled. This valve is simple to adjust and works automatically.

GEM NO. 4

The Beaton & Cadwell Mfg. Co.
New Britain, Conn.

Eastern Agents:
J. R. Devereaux & Co.,
602 New Birks Bldg
Montreal.

Western Agents:
A. E. Hinds & Co.,
Galt Building
Winnipeg.

TORONTO MARKETS

(Continued from Page 34)

DEMAND FOR SHEETS MAINTAINED IN VOLUME

Toronto

The current demand for both black and galvanized sheets is reported as keeping up very well, and compares favorably with the movement established during recent weeks. Black sheets have now generally firmed up at the $5.00 base price, and while some rumors of $4.80 are heard as regards large commitments, the higher level is generally quoted. Just what effect the reductions in freight rates on basic materials will have on the semi-finished steel product prices is difficult to determine, but as the revision in transportation charges is considered of minor extent, the reflection of such change on individual lines will naturally be of a limited nature. Further efforts to end the coal strike in the south have been made in recent days, but apparently without immediate results. It is stated that a number of American blast furnaces may be forced to go out unless coal conditions are materially changed soon. This situation has created an improved domestic demand for English galvanized sheet products.

ANNEALED SHEETS—	
10 gauge, base	4 00
12 gauge	4 05
14 gauge	4 10
16 gauge	4 15
BLACK SHEETS—	
18-20 gauge	4 80
22-24	4 85
26 gauge	4 90
28 gauge	5 00

A charge of 25c per 100 lbs. is made for less than case lots. An extra 10c per 100 lbs. is also charged on sheets 26 in. wide.

GALVANIZED—	Queen's Head.	Fleur-de-
28 gauge	7 25	7 00
26 gauge	7 00	6 75
24 gauge	6 40	6 35
22 gauge	6 05	5 90
18 and 20 gauge	5 85	5 75
	Premier and	Apollo
20½ oz.	6 40	7 10
U. S. 28, base	6 00	6 65
U. S. 26	5 70	6 35
22 and 24	5 55	6 20
18 and 20	5 40	6 05
16	5 25	5 90
12 and 14	5 10	5 75

An extra is now charged on galvanized sheets, 10½ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20 cents per 100 pounds. Other gauges show no change for different widths.

An extra 40 cents per 100 lbs., is charged for Kewstone and Premier brands copper-bearing sheets.

INGOT METAL TONE AGAIN MARKING TIME

Toronto

A waiting attitude is recorded in the ingot markets, many dealers and consumers apparently not being disposed to act until virgin metals become more settled. Prices are practically steady, however, although in some cases, such as tin and spelter, producers are asking slightly higher levels on primary centres. Domestic quotations are unchanged, with the movement described as dull.

COPPER—The copper market shows a slightly better outlook this week, owing to a little improvement in the call for export from primary centres. There is very little animation among domestic consumers, however, but prices are at the level of 17 cents.

Winnipeg Markets

WINNIPEG, July 13.—There are only minor changes recorded on the current market for plumbing and steamfitting supplies. The raw cotton market is showing a firmer tone and cotton wastes, while unchanged, are expected to reflect this tendency. Lead product prices have advanced half a cent per pound and lead pipe has shown an advance of one cent per pound. Trade conditions are reported much improved due to the popular movement in construction circles.

RISE IN RAW COTTON REFLECTED IN WASTES

Winnipeg.

While current price levels on cotton waste at present remain unchanged yet the market reflects a stronger tone and although the present demand is not heavy, higher prices are expected to follow according to the observations expressed in certain quarters.

WASTE—	
Cream, polishing	0 29
WHITE—	
XXX Extra	0 18½
XX Grand	0 17½
XLCR	0 16½
X Empire	0 15
X Press	0 14½
COLORED—	
Fancy	0 15½
Lion	0 14
Standard	0 12*
Popular J.	0 09½
Keen	0 09½

LEAD PRICES ADVANCED HALF A CENT PER POUND

Winnipeg.

Lead product prices are ruling firm, and higher quotations on ingot lead have been recorded. Wholesalers quotations to the trade are 8½c per pound. While the general tone has fluctuated slightly the movement has been gradually upward, this position being attributed to increasing demand and greater consumer interest. Lead pipe has also shown an advance of a cent per pound, with waste and lead traps and bends also recording an upward revision. Following are new price levels:

LEAD AND ZINC—	
Lead pipe, net	$12.51 per 100 lb.
Lead waste, net	$13.41 per 100 lb.
Lead traps and bends,	List less, 10 per cent.
Lead sheets, in rolls	11c. per lb.
Do., less rolls	11¾c. per lb.
Solder, ½ and ½case lots	26c. lb.
Do., less	27c. lb.
Do., wiping, cases	25c. lb.
Less than cases	25c. lb.
Zinc	13c. lb.

CORRUGATED SHEETS IN STRONG POSITION

Winnipeg.

Present stocks of corrugated sheets are in fairly good shape although the increased demand coupled with slow deliveries from the mills are factors which may tend to tax available supplies during the next few weeks.

COMPRESSION GOODS MAINTAIN RECENT LEVELS

Winnipeg.

The current movement of compression goods has been fairly good and an improvement is noted. With the increase in buildings a feeling of activity is expected. Unchanged quotations follow:

VALVES—	
Compression work, standard	40% & 50%
Fuller Work, Standard	30%
Bath cocks, compression	41%
Bath cocks, quick opening	41%
Basin cocks, compression	30%
Basin cocks, quick opening	45%
Brass steam cocks	35%

TROUGH AND PIPE IN GOOD DEMAND

Winnipeg.

Eavestroughing business is now showing a seasonable improvement. Conductor pipes and elbows are also in good demand. Prices on these lines are unchanged. Merchants continue to buy in small quantities and a livelier trade is expected as the season develops.

BETTER DEMAND FOR FITTINGS IS RECORDED

Winnipeg.

A better demand is reported for pipe fittings. Prices at the present time show no change, but improved activity is noted.

SEASONABLE ACTIVITY RECORDED IN SOIL PIPE

Winnipeg.

There is a good movement for soil pipe and fittings. Stocks are low and manufacturers are rushing orders through as quickly as possible. Raw material prices are on the upward trend although there has been no change in local quotations recently.

SOIL PIPE—	
2 and 3 in.	27½%
4 in.	37½%
5 and 6 in.	32½%
8 in.	10% adv.
SOIL PIPE FITTINGS—	
2 and 3 in.	47½%
4, 5 and 6 in.	50%
8 in.	10% adv.

IMPORTANT MARKET DEVELOPMENTS

(Continued from Page 27)

Wholesalers point out that distributing costs remain necessarily high, due to the prevalence of small and rush orders on the part of purchasers, this custom serving to develop a false hum of activity in warehouses and shipping departments in many instances. During recent weeks, however, commitments are stated to be in larger volume, which has balanced this condition on a normal plane, as well as being indicative of improvement in construction circles and the restoration of confidence throughout the trade in general.

BEAVER BRAND
Porcelain Enamel Ware
—*Your Guarantee of Quality*—

Beaver Brand Enamelware by its ability to meet the highest demands for service under all conditions, has established itself in the confidence of the public to such an extent that each month witnesses an ever-increasing demand for products of Beaver manufacture.

Amherst Foundry Co., Limited

General Offices and Factory : Amherst, N.S.

Agents :

Ontario :
Monarch Brass Mfg. Co.
71 Brown St., Toronto

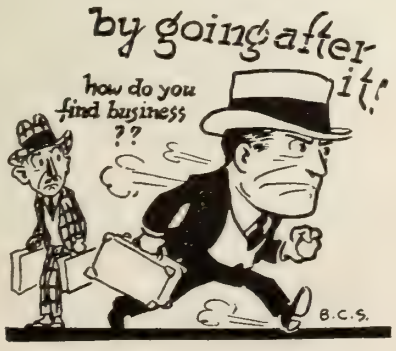
Manitoba and Northwest :
E. B. Plewes
197 Princess St., Winnipeg

Allpriser—
Your Price Clerk

Write for further information

K. B. ALLISON

4 Irwin Ave. - Toronto, Ont.



¶ Yes, it takes a lot of going after, all right.

¶ The fellow who hasn't got everything at his finger tips is a back number today.

¶ Sanitary Engineer will "keep you hep" to what's happening in the plumbing, heating and tinsmithing field.

Classified Buyers Guide

AIR LINE SYSTEMS
C. A. Dunham Co., Ltd., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.

ALUMINUM CASTINGS
Fittings Limited, Oshawa.
Canada Metal Co., Ltd., Toronto.

AIR VALVES
Beaton & Cadwell Mfg. Co., New Britain, Conn.
W. H. Cunningham & Hill, Ltd., Toronto.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
J. H. Williams Co., Brooklyn, New York.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.

BATHROOM FITTINGS
Canada Metal Co., Ltd., Toronto.
Gendron Mfg. Co., Ltd., Toronto.

BENDING SPRINGS
W. H. Cunningham & Hill, Ltd., Toronto.

BOILERS, STEAM OR HOT WATER
Gurney Foundry Co., Limited, Toronto.
Lord & Burnham Co., Ltd., Toronto.
Spencer Heater Co., Ltd., Toronto, Ont.
Warden King, Ltd., Montreal.

BOILER FEED REGULATORS
Empire Mfg. Co., London and Toronto.
C. A. Dunham Co., Ltd., Toronto.

BOILER STANDS
Fittings Limited, Oshawa.

BOLTS, EYE
J. H. Williams & Co., Brooklyn, N.Y.

BOLTS AND NUTS
Fittings Limited, Oshawa.

BRASS GOODS, VALVES, ETC.
Canadian Brass Co., Ltd., Galt, Ont.
Canada Metal Co., Ltd., Toronto.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings Limited, Oshawa.
Galt Brass Co., Limited, Galt.
Kerr Engine Co., Ltd., Walkerville.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.
W. H. Cunningham & Hill, Ltd., Toronto.

BRASS PIPE AND TUBE
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Wolverine Ltd., Toronto, Ont.

CASTINGS
Canada Metal Co., Ltd., Toronto.
Fittings Limited, Oshawa.

CELLAR DRAINERS
Galt Brass Co., Limited, Galt.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

CHAINS
Fittings Limited, Oshawa.
J. H. Williams & Co., Brooklyn, N.Y.

CLOSETS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

CONDENSATION UNITS
C. A. Dunham Co., Ltd., Toronto, Ont.
The Weste- Pumps Limited, Toronto.

COUNTRY RESIDENCE EQUIPMENTS
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

COUPLINGS
Canada Metal Co., Ltd., Toronto.
Fittings Limited, Oshawa.

DAMPER REGULATORS
C. A. Dunham Co., Ltd., Toronto.

DRAINAGE FITTINGS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings Limited, Oshawa.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Warden King, Ltd., Montreal.

DRAIN PIPE, SOLVENT
W. H. Cunningham & Hill, Ltd., Toronto.

DRINKING FOUNTAINS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

DROP FORGINGS
J. H. Williams & Co., Brooklyn, N.Y.

EJECTORS, STEAM
Kerr Engine Co., Walkerville.
United Brassfounders & Engineers Ltd., Manchester, Eng.

ENAMELWARE
Amherst Foundry Co., Ltd., Amherst, N.S.
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
Port Hope Sanitary Mfg. Co., Ltd., Port Hope.
Standard Sanitary Mfg. Co., Ltd., Toronto.

ELECTRIC PUMPING MACHINERY
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

EXPANSION TANKS
Toronto Hardware Mfg. Co., Ltd., Toronto.

FITTINGS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings Limited, Oshawa.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Warden King, Ltd., Montreal.

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Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Ltd., Galt.
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Wolverine Ltd., Toronto, Ont.

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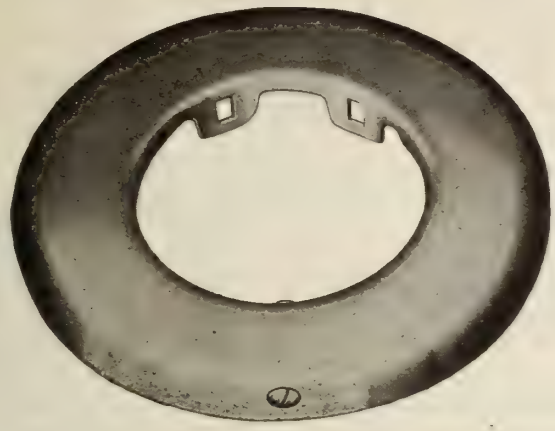

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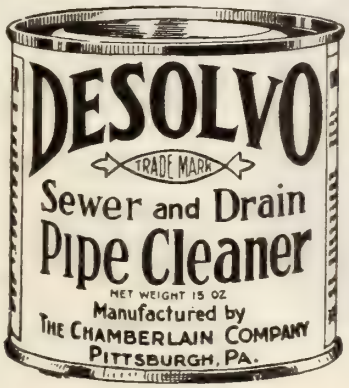

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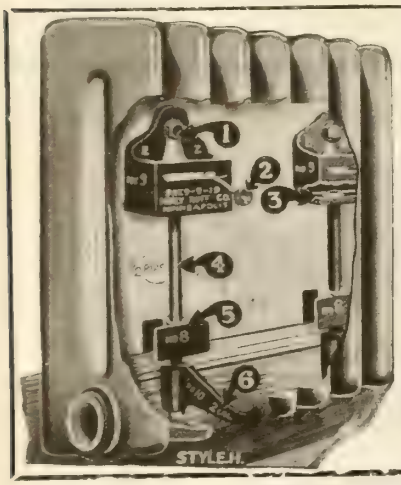

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This reliable, dependable toilet seat is made of 7 and 9-ply, air-seasoned wood veneer, held together by our special wood cement. This cement is proof against heat, cold or dampness. The veneering is distributed according to the strain and wear required of the different parts. The Everlasting Seat will never crack, warp or split.

It is a splendid seat for use in cold, damp basements where closets must be installed. The Everlasting Toilet Seat will meet, and successfully resist these severe conditions of moisture, changing temperature, etc.

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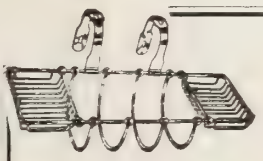

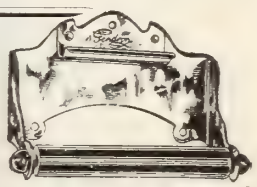

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The Gendron Mfg. Co., Limited

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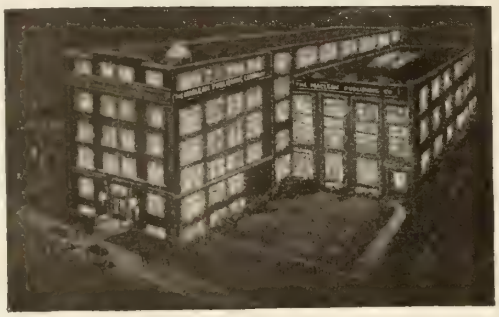

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PNEUMATIC

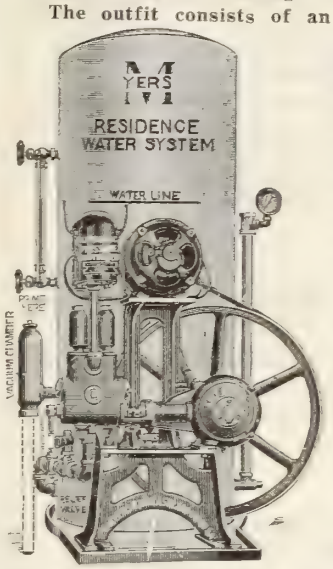
WATER SUPPLY

SYSTEM

Gives country residents all the advantages of a city water system without the excessive cost

The wide-awake dealer will make big profits out of this system among customers who now have difficulty with their water supply. It is so simple to operate and costs practically nothing for upkeep.

The outfit consists of an air-tight steel tank which can be placed in the basement, and a "Myers" famous guaranteed pump (hand or power), suitable for pumping air or water, together with pipes and fittings. Any plumber or gas fitter can easily install it. Every outfit guaranteed to do the work for which it is designed. For small or large dwellings.



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The

STEEL TROUGH & MACHINE CO., Ltd.

Tweed, Ont., Canada

"Supreme"

Water Heater

(electric or gas)

"Just a Real Good Heater"

Recognized by satisfied users as the most economical and efficient heater on the market.

If you are not selling the Supreme write for our proposition to-day. It's a profitable one.

Manufactured by

Supreme Water Heater Mfg. Company

1 Carlton St. Toronto

The Martin Portable Vise Stand

Light in weight—
only fifty pounds

Can be carried anywhere without inconvenience.

Put up in two seconds; no bolts, screws or fastenings needed.

Use the Martin Portable Vise Stand where pipe or conduit must be bent, cut or threaded.

10 days free trial.

If your jobber can't supply you—write us.

H. P. MARTIN & SONS
803 W. 12th Street OWENSBORO, Ky.

WROUGHT PIPE

Suitable for the approaching period of building activity, road construction, etc. This is a line of great importance in making successful, profitable contracts. Our C. T. Brand of Wrought Pipe has been

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by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trademark. We carry this line of reliable pipe in sizes ⅛-in. to 4-in. Black or Galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your Jobber for C. T. Brand Wrought Pipe

Canadian Tube and Steel Products Co., Ltd.
Operating Canadian Tube and Iron Co., Limited
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Brand
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Strongly made of superior materials, and thoroughly proof against warping, opening, etc. Investigate the Bull Dog line of products.

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Easier to attach
More permanent
Cost less

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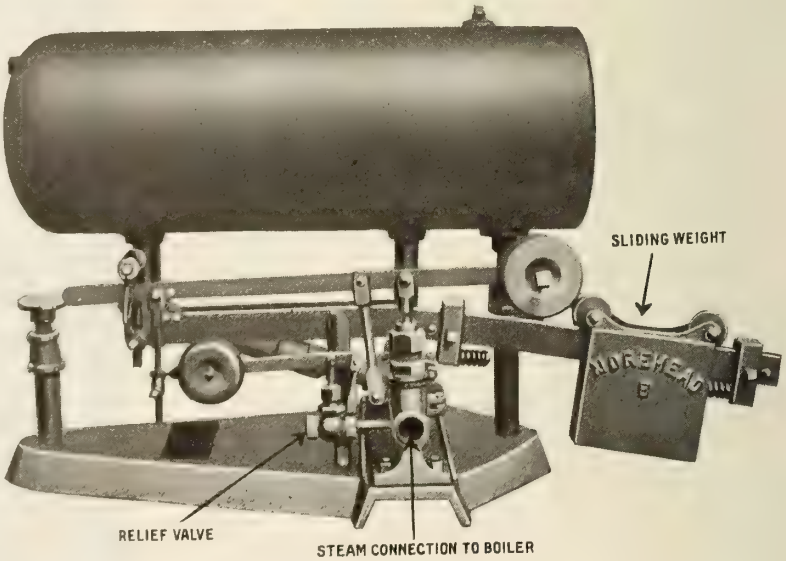
Saves Coal ***Raises Efficiency***

Makes friends and Money for the Heating Contractor



Farrfhern Atmospheric Steam Heating will save you worries; save you labor.

Pass on your next plant job, heating prospect or trouble job to us, and see what we can do for you.

J. E. FARRELL, Director of Sales
210 Galley Ave. - - TORONTO

The Publisher's Page

TORONTO JULY 15, 1922

A Tip for Advertisers

WHY do so many well-written advertisements fail to make a profit? asks Herbert N. Casson, in Forbes Magazine, and answers the question by pointing out that the advertisements were not used to the full by the advertiser himself. Often, an advertisement standing alone and without follow-up, will do wonders; but it is too much to expect an advertisement to carry the whole burden of salesmanship.

Too often, a firm makes up its mind to spend $5,000 on a big bang of an advertisement. It does so. There is a sudden loud noise and then—dead silence. Nothing much has happened. And ever afterwards that firm says "Advertising is a failure."

This is not fair to advertising. The firm itself was to blame, not the principle of publicity.

Many firms make this mistake for the simple reason that it is easier to spend than to plan.

They use their advertisement as a rocket, not as a lighthouse.

If you want advertising to do its best for you, you must treat it fairly. You must do it well. You must prepare for the advertising and you must complete the job—and make the most of it.

After all, advertising is only sowing the seed. After the soil and sun and the rain have done their best, there is still the harvesting. You must reap and stack and thresh and bag and sell. Also you must chase the birds off.

SANITARY ENGINEER

Office of Publication:

143-153 University Avenue **Toronto, Canada**

First

Away out in front, easily distinguished by its wonderful new design and glistening in its brilliant snowy whiteness, stands the New Design Vitro, unsurpassed in appearance and appointments—an easy first.

Once having installed this New Design Vitro, your discrimination will not allow you to sell any other.

GALT BRASS COMPANY, LIMITED

GALT ∴ ∴ ONTARIO

Every Tank Tested

VITRO
NO TROUBLE
TANK

Every Part Perfect

Sanitary Engineer
Plumber and Steamfitter of Canada

Vol. XVI. PUBLICATION OFFICE, TORONTO, AUGUST 1, 1922 No. 15

EMPIRE

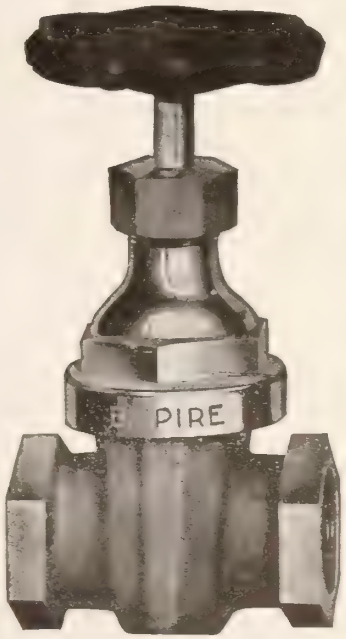
"Emco" Gate Valves

Webber Pattern, Non-Rising Stem

A solid Wedge Valve of heavy construction, designed and registered in all the Provinces of the Dominion, for steam working pressure of 175 pounds and water pressure of 225 pounds per square inch. This Valve has a packing gland and is made from the best steam metal.

We also make a standard pattern gate Valve of a lighter type with Solid Wedge and Rising Stem, designed only for Steam Pressure of 125 pounds and Water Pressure of 175 pounds per square inch. Sold by the best jobbers everywhere.

"Cut Waste Into Halves With 'Emco' Valves."



A—861

Empire Brass Manufacturing Co.
LIMITED
London and Toronto, Canada

Look for our Exhibit at the Toronto Exhibition and the Western Fair

It Costs Less
It's Cheaper to Ship
It's Simpler to Install

There's real money in our new Roll Rim Sink, as hundreds of plumbers and hardware merchants have shown since the sinks were introduced a few weeks ago. It is turning out to be one of the most attractive propositions on the market.

SMP *White Enameled* ROLL RIM SINKS

have many points in their favour. The price, $9.90, Ex-warehouse Toronto, is approximately 50% lower than average sink prices. This includes brackets, pipe couplings and nickel-plated brass strainer.

SMP White Enameled Roll Rim Sinks cost less to ship. One of these sinks weighs only 58 lbs. packed complete for shipment, fittings and all. Ordinary sinks, minus fittings, weigh from 120 to 150 lbs. There's a big difference and that difference creates a very important reduction in freight bills.

One man can easily handle and put up one of our new sinks. You save money again in installation.

These sinks are very strong; three coats of super fine enamel on the inside and two on the outside over a shape of Armco Iron; snow-white and smooth as glass. They are proving to be great money-makers and deserve your immediate attention.

SHIPMENTS MADE PROMPTLY

SMP QUALITY TRADE MARK

THE SHEET METAL PRODUCTS Co. OF CANADA LIMITED

MONTREAL EDMONTON TORONTO VANCOUVER WINNIPEG CALGARY

SMP QUALITY TRADE MARK

Special Fixtures For Prison Work

No. 271 N.

This closet has been specially designed for prison work, and the many hundreds which have been installed in institutions throughout Canada have proven the unusual merits it possesses for that specific purpose.

Both supply and outlet are to the wall and the direct waterway, while providing a perfect seal, is such as to eliminate any chance of trouble from obstruction. The closet throughout is of very massive construction, and has a comfortably designed integral seat as shown.

Being produced in Canadian solid vitreous ware, absolute and enduring sanitation and cleanliness are of course assured.

This lavatory is also specially designed for prison installation, being of extra heavy construction.

Both supply and outlet are to the wall and is so fitted that no metal parts are exposed for interference.

The back is ground smooth so as to ensure a perfect fit against the wall, and china bolt caps are furnished to be cemented in after the lavatory is bolted in position.

The bowl is of adequate size and soap dish is furnished in left hand corner as shown.

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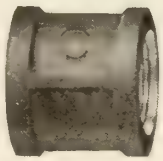

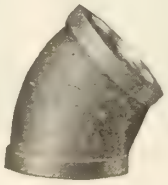
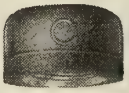

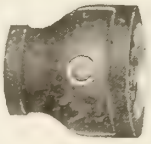

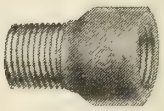

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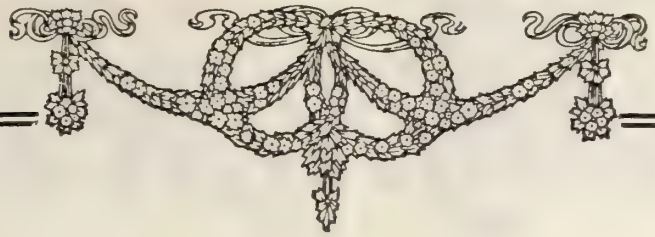

BILL STEVENSON once said that the only
REASON HE was in the plumbing business
WAS BECAUSE he didn't know any other
IN OTHER WORDS Bill was fed up with it.
HE HAD been fed up with it for a long
TIME. WHO wouldn't be fed up with a business
THAT MEANT so much hard work for such
MEAGRE RETURNS. Bill used to laugh when
HE READ news items in the daily papers
WHICH TOLD about the high prices
PLUMBERS WERE charging and how they must be
MILLIONAIRES AND weren't they robbers, and
THERE OUGHT to be an investigation etc.
YES, BILL would laugh but at the same time
AWAY BACK in his mind he knew that he
SHOULD BE making money. He thought he
ALLOWED ENOUGH margin when he was
MAKING ESTIMATES but when jobs were
COMPLETED HE usually found that he
HAD ONLY made pin money instead of a
REAL PROFIT. One day at a convention
BILL HEARD one sanitary engineer telling
SEVERAL OTHERS how he was able to show a
BALANCE ON the right side of the books.
BILL STUCK around till the rest were gone and
ASKED HIS brother plumber how he was able to
SHOW A profit and still be in the plumbing
BUSINESS AND whether he didn't run a little
STILL ON the side to kind of help out.
"IT'S EASY BILL" said the successful plumber,
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PRICE CLERK AND YOU CAN'T GO WRONG."
WHICH BILL did.

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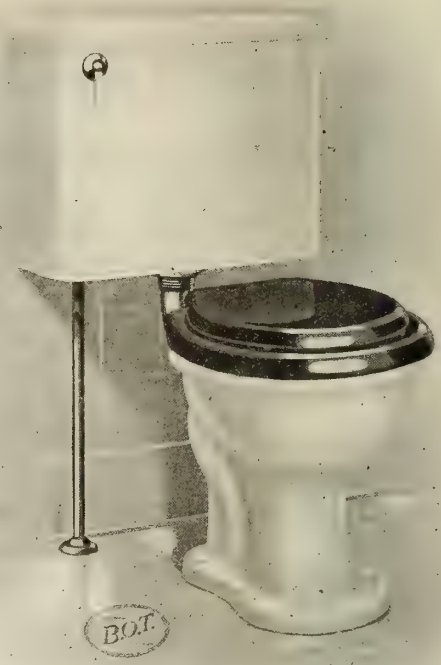

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PLUMBER AND STEAMFITTER OF CANADA

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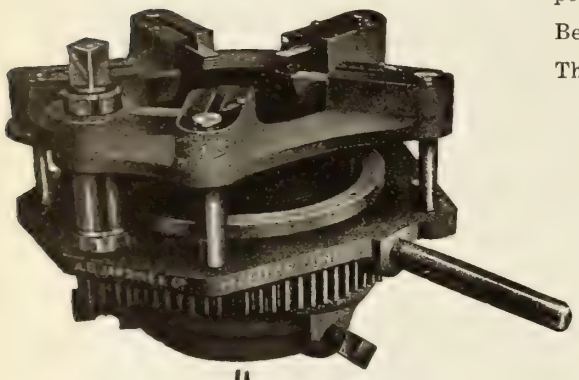

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Far Reaching Taxation Changes Likely To Be Made in the Very Near Future

An Authority Close to the Administration at Ottawa Gives Sanitary Engineer Insight Into Probable Governmental Action on Taxation Matters—Burden on Certain Trades May Be Relieved By Abolishing Some Taxes and Increasing Sales Tax

A CONSIDERABLE change in the present system of taxation, of interest to all branches of the plumbing trade in Canada, is imminent according to information secured by Sanitary Engineer from a source usually well informed which in the past has correctly forecast pending governmental action some time in advance, due to a close association with the administration.

The probable changes are not likely to be so much an alteration of principle as an extension of certain prevailing policies and the abolition of some other forms of taxation which do not raise sufficient revenue in proportion to the expense of their administration.

Best Principle

After experimenting with various taxes such as those on luxuries, business profits, etc., it has generally been agreed that the Sales Tax is the best from the standpoint of principle, though there is admittedly much confusion in the application of this tax which may be avoided by subsequent changes. Thus, Sanitary Engineer is advised that it is the intention to extend the Sales Tax and have it raise sufficient revenue to allow the discontinuance of certain other minor tax impositions now in force. Attention is drawn to the fact that since the Sales Tax principle was enforced two years ago it has been increased 125 per cent.; starting at 1 per cent. on sales from manufacturers to wholesalers and again on sales from the latter to retailers. This was shortly increased to 1½ per cent. on each of these transactions and is now up to 2¼ per cent. Another increase of 125 per cent., which is said to be quite within the realm of possibility in future, would bring this tax to approximately 5 per cent. on each stage of the transaction or a total of 10 per cent. on the movement of merchandise from manufacturer to retailer.

May be Bad Precedent

It was pointed out that should this forecast be borne out, those firms which are absorbing part of the present taxes may have difficulty in continuing to do so, or in breaking away from this policy in future. It is noteworthy that with the last comparatively small increase in the Sales Tax a number of manufacturers and wholesalers found it necessary to discontinue absorbing any part of the tax. Many others are still doing so.

Some other changes are also likely to be made in connection with the application of the Sales Tax. It was stated that with Parliament now prorogued and members away on summer holidays no immediate action could be looked for but that within three months some questions would probably be asked of the government concerning the amount of revenue raised by the Sales Tax from various sources; and the extent of the burden on different branches of trade would be investigated. Changes which would probably subsequently follow would eliminate many of the hardships which are now attendant on this tax.

Eliminate Sale Manufacturer to Jobber

One of the possible changes was likely to be the elimination of the Sales Tax on sales from manufacturer to jobber. Under this plan the whole amount of the Sales Tax which would ordinarily apply on the movement of merchandise from manufacturer to retailer through the wholesaler, would appear on the invoice of a sale of goods to the retailer either from the manufacturer or the wholesaler, and each would make his return separately to the government. It would be made compulsory for the Sales Tax to be shown in full as a separate item and collected on each sale. It was pointed out that this plan would avoid many of the difficulties now encountered which force either manufacturer or wholesaler to absorb all or part of this tax in order to equalize prices to the trade. It would also offset prejudice against those firms which find they cannot afford to absorb this tax.

A definite ruling in the matter and each firm compelled to follow the same policy would be desirable, but it would have to be considered in detail and no loophole left. For instance, the question immediately arises: Who is a jobber? Much difficulty has been encountered in endeavoring to establish a status for various merchants in the past. For example there are some manufacturers who sell on jobbers' terms to firms which are not in general practice recognized as jobbers. Who is competent to make a ruling applying to these cases? The government will have to show more adaptability for defining the status of various merchants than they have shown in the past if they are going to give a satisfactory answer to this question. The lack of judgment which has been displayed by certain government officials in defining the status of tinsmiths and other retailers for taxation purposes has brought untold confusion in this branch of trade resulting in numerous court cases and as many different rulings as there are Customs Collectors in the Dominion.

There are many interesting possibilities involved in these changes which may be made within the near future. In view of the pending developments it therefore behooves all branches of trade and government officials to have an intelligent understanding of each other's problems and be prepared to plan future administration with some respect to the difficulties involved.

Education of Plumbing Apprentices

Master Plumbers of Port Arthur, Ont., Have Efficient Course of Instruction at Local Technical Institute—Teaching Both Lead and Iron Roughing-in Work—Water Supply System in Operation Interests Prospects—Doings of the Local Association

IN VIEW of the fact that educational effort and the securing of apprentices is one of the big problems before the plumbing and heating industry to-day, as indicated by the prolonged discussions which have taken place on the subject at this year's conventions of the various provincial societies, Sanitary Engineer has secured details of an educational scheme worked out by the Master Plumbers' Association of Port Arthur, Ont., under the direction of L. A. Greene, secretary of the association, in connection with the courses at the Port Arthur Collegiate.

As to the methods of instruction adopted in this course and the result of it, we will leave it to A. J. Peckett, Plumbing Inspector of the city and one of the instructors, to tell:—

"You will see by the photographs the kind of plumbing I am teaching and how we are helping our apprentices and helpers who are employed at the trade in the day time.

"I started teaching at the evening class in 1912 and carried on with this work up to 1914 when the evening classes were called off during the war. At the end of 1915 I enlisted and went overseas and did not return until July 1919, when I resumed my old position as plumbing and building inspector and then took up this evening class in the following October until we closed down at the end of the term in the following March.

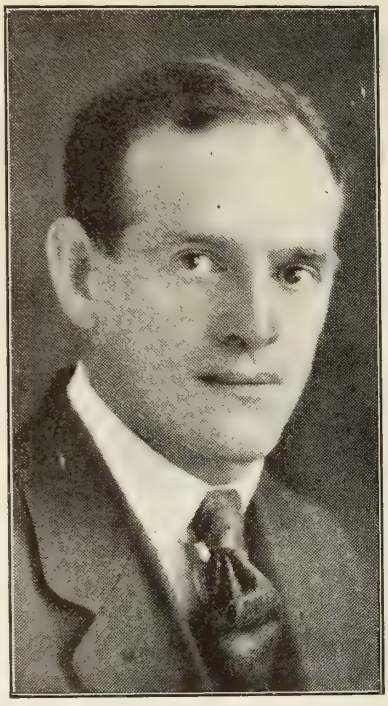
Progress in Two Years

"I might say, that I have been able this last year or so to get some equipment. We know that this special line of work I am doing cannot be done without the necessary tools and material. I have been able to make great progress with this work this last two years.

"I have every year about twelve in my class, but not always the same boys, owing to moving around and leaving the city. This makes things a little harder for me as when you have taught them to prepare their work on the bench and wipe joints something comes along and they have to leave this school.

"However, after the first year as they make progress in this work I put them in another category and then I start them off roughing-in jobs. You will note in the photo a miniature job. As far as the height goes I have only eight feet to the bottom of joists so you see we have got the full plumbing job roughed in for W. C., bath, basin, and sink and also the necessary venting.

"This last year or so we have been successful in getting the master plumbers of both cities to take an interest in this work and they have certainly taken a great interest in it. The last two years they have given a banquet and prizes for the best work done, after the closing of the Technical School at the end of March.



L. A. GREENE

Secretary-Treasurer of the Master Plumbers' Association of Port Arthur and prime mover in the instructional course for plumbing apprentices at the Port Arthur Collegiate, which is described herewith.

"The apprentice that roughed in the stack is T. Bennett, a returned man, who took up the trade with Greene and Stirling in 1919, through the vocational training. He has made great strides and will before very long, be able to pass the city practical examination and take out his license as a journeyman plumber. At the present time his application is in my hands for a license.

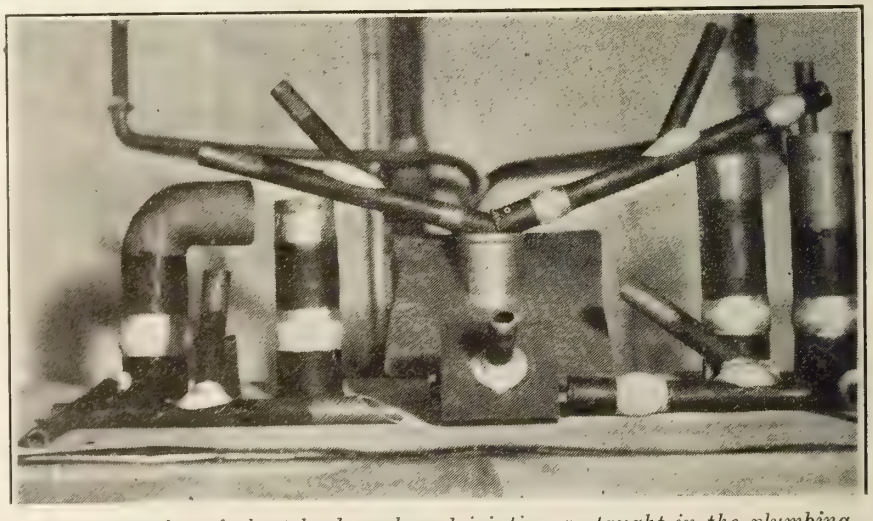
A Good Wiper of Joints

"I have another apprentice working for H. R. Sime by the name of H. McRae, Jr., who is as far advanced as Mr. Bennett, of Greene and Stirling. John Sime Jr. serving his time with his father, John Sime, Fort William, has made great progress. Another one, Pete, a young Italian, age 16, working for the Lakehead Engineering Company Port Arthur, has also progressed. You will see some four inch joints, two inch and a branch on the forty-five degree whic he has wiped. He is certainly good on wiping, and other apprentices have from time to time done equally well.

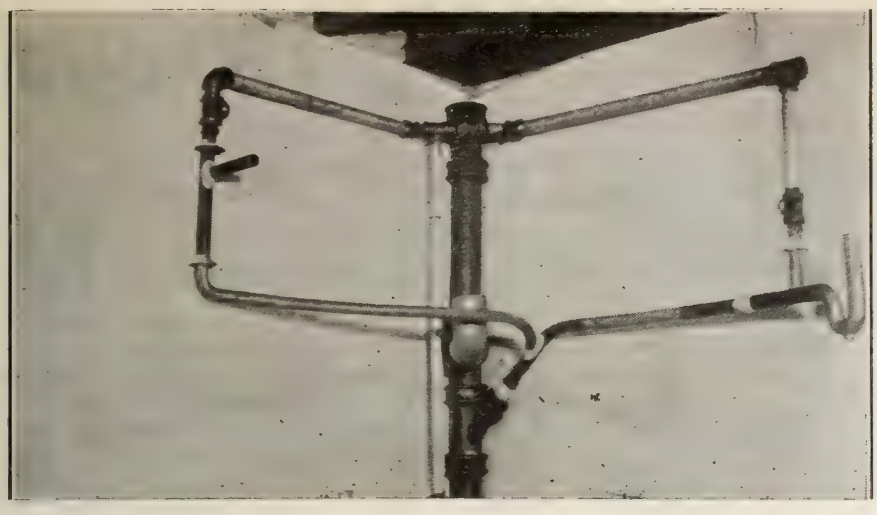
"We owe much to the master plumbers of both cities for the way they are helping things out. Mr. Barnes of the Lakehead Engineering at the annual Banquet stated that he had given his apprentices notice that they must attend this evening class. Other masters are doing the same.

"This year we are taking up all manner of things, roughing in for batteries of basins, etc. Everything I am teaching is in lead work and jointing and sheet lead work. I think every boy should be taught this work and then when he goes out into the world to earn his living he has got both ideas in the way of roughing-in work and can do it in iron as well as lead.

"I am very pleased to say that the



Some samples of sheet lead work and jointing as taught in the plumbing apprentice's course at the Port Arthur Technical School.



Part of the stack with basin and closet waste pipes, and other kindred connections showing some neat work in pipe fitting, as done by apprentices attending the instructional course at Port Arthur Technical School.

good work accomplished has been recognized by many manufacturers and supply firms.

"Those interested in the raising of the standard of plumbing in this way are donating prizes to every boy who puts in his full attendance at these evening classes.

"The co-operation of the masters of Port Arthur and Fort William and the tangible interest of the manufacturers have encouraged us to put on for next year a technical class that will be second to none in this province."

Water System in Operation

In visiting Mr. Greene at his premises, Sanitary Engineer noted that a complete water supply system for rural use was set up in working order. This complete set has been the centre of much interest on the part of prospects and has helped close a number of sales. While discussing the subject with Mr. Greene a prospect came in to examine the system and he was a subsequent purchaser.

The city has a real live association of sanitary engineers. At present the Kiwanis Club of Fort William and Pt. Arthur are building a home for a poor widow with four children. Money was raised by public subscription but not sufficient money was received to permit the installation of plumbing. Larry Greene who is also a Kiwanian brought this to the attention of the association and it was unanimously declared that the master plumbers would donate the plumbing. This was done in accordance with the established principles of the association that every modern home should have modern plumbing.

The firms who donated the plumbing included:—Lakehead Engineering Co., Geo. Bell; Geo. Purvis; R. E. Shaw; Greene and Stirling; Plumbing and Engineering Supply Co.; J. Marshall; Fairbanks Co., per B. Gall and Dominion Plumbing Co., per Jack Sime.

The city of Port Arthur recently held an investigation into the reason why building was so backward. L. A. Greene and Jos. Barnes were in attendance at the request of the trade. The citizens who attended the meeting were convinced that it was not the cost of plumbing and heating that was delaying building. It was pointed out that cost of plumbing and heating in that city was just as low as in Toronto and other eastern points. This open expression of opinion on both sides helped greatly to clear the air, and it represents a policy which these master plumbers advocate following in communities where people have a wrong opinion of the plumber and his charges.

New Building at Moncton, N. B.

Moncton, N. B.—Tenders are to be called for the erection of a thirty-roomed almshouse at Moncton, N.B., to replace the one destroyed by fire. The architect is now preparing the plans.

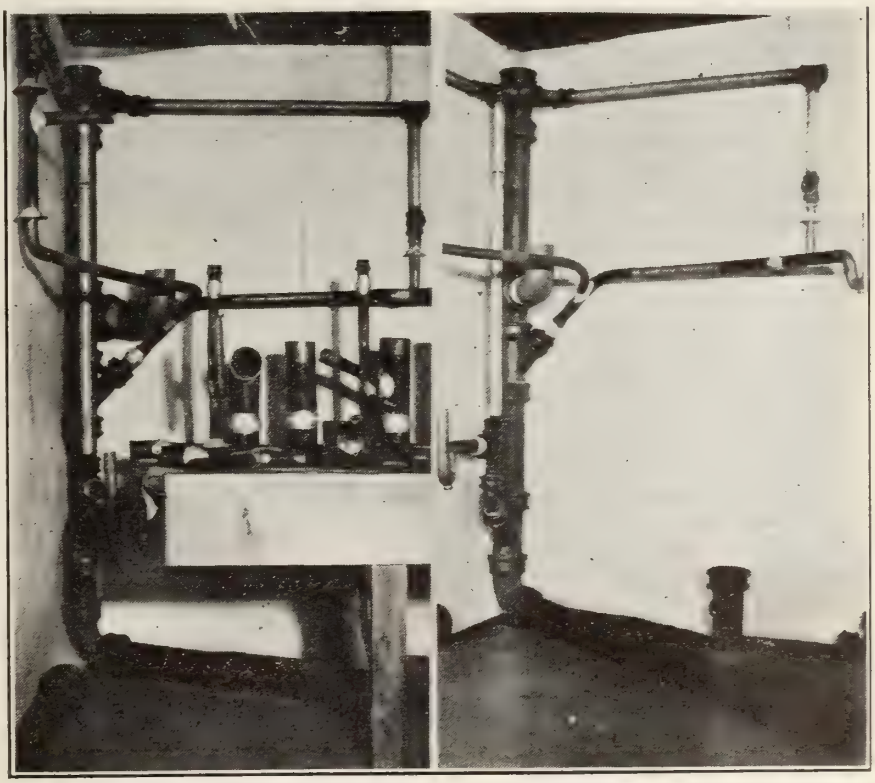
OBITUARY

The death occurred in Thetford Mines, Que., this week of John Dodds Sharpe, 55 years of age, for several years general manager of the Asbestos Corporation of Canada, whose large asbestos mining plants are situated in the above district. Mr. Sharpe had been in ill health for several months prior to his death.

TO BE OR NOT TO BE

Whether 'tis better to pay a price
That lets each worker get a slice
So that he may decently pay his way
And save something for the rainy day.
Or buy that stuff from that fellow Brown
Who hawks his goods all over town.
Who, when he quotes me an extra five,
I know, just as sure as I'm alive
Is quoting to someone else a ten
Gee, doesn't this try the souls of men.

K. B. Allison.



In these two pictures the stack and drain pipes with waste and vent pipes and traps are shown as constructed by apprentices at the Port Arthur Technical School. The limited height makes it necessary to show these on a shorter scale than normal. On the left are some samples of neat joint wiping.

Necessity of Proper Sewage Disposal

Health of People in Cities and Rural Communities Receiving More Attention—Many Avoidable Deaths Due to Sanitary Neglect—Septic Tank is the Answer to the Problem in Rural Districts

Written by C. M. MAYO

THE WORLD is awakening to the necessity of proper sewage disposal. The health of the people in cities and in rural communities demands a solution of this most important problem. Its necessity is manifest Leading sanitary exports throughout the world are putting forth great efforts in perfecting sanitary conditions. Statistics point to its importance. The indisputable facts show, beyond a shadow of a doubt, that more than 250,000 deaths, not to mention 4,500,000 cases of sickness each year, result on this continent from neglect of simple precautions which would prevent the spread of typhoid, dysentery, summer complaint, and hookworm.

These diseases are primarily due to filth and could almost be eliminated, if not entirely prevented, by the adoption of sanitary measures.

The Research Department of the Indiana State Board of Health, which is under the direction of Dr. J. N. Hurty, an able and experienced sanitary expert, has shown that out of every 100 typhoid cases, 85 have resulted from the use of the out-door toilet. Experts throughout the country, whose opinion has been solicited, have expressed the outcome of their investigations in the following manner:

Control of Sewage

Cleanliness throughout the country means the control of sewage disposal. Safeguarding the health of this country is a most serious problem. The time is at hand when the entire population can safeguard the health and prolong the life of the inhabitants of the country. Modern living conditions such as the congested population in cities, the closer living conditions in small towns and on farms throughout the entire country demand that a stricter observance of the sanitary surroundings are exercised and the Twentieth Century has brought forth innumerable devices, means and methods of accomplishing this,—but it requires the exercise thereof and the employment of the same, also individual co-operation and compliance with sanitary laws to be observed and carried out. In the suburban districts of large and small cities, in the villages and in the country where the sewer systems are absent, is where the diseases above referred to, exact the greatest toll. Out of every six persons living in the country, one has typhoid—of those, one in ten die. There are six times as many deaths among babies from summer complaint every year as among persons of all ages who have typhoid.

Over 2,000,000 persons on the continent are afflicted with the hookworm disease. Are we going to continue to be murderers or will we put our shoulders to the wheel and do our part in the readjustment to modern conditions so as to prevent the above calamities which confront us?

It is high time we avail ourselves of nature's wonderful method of guarding the health of the world. Scientists have shown that everything in nature dies and is subject to decay, from the smallest blade of grass to the highest form of animal life. The process is brought about by the action of bacteria, which are minute, living organisms, invisible to the eye, yet so numerous and so powerful as to be able to literally eat up and digest all dead matter. They are everywhere present,—in water, in air, in the soil and in our bodies. Some of them are known to stimulate certain specific diseases, and the destruction of these by medical treatment is known as the septic process or the process which destroys or liquefies all dead matter, therefore a septic tank is a tank in which all house sewage or waste is reduced to liquid by this bacterial process.

Some of the filth destroying bacteria work best in the open air, others do their work only in a dark, airtight receptacle, where the temperature does not drop below 50 degrees. The latter is the class that is formed and operates in a perfectly constructed septic tank. The master plumbers are now organizing and putting forth a concerted effort in aiding the people to enjoy modern plumbing, and with it their attention is directed to sewage disposal, which problem has been solved by the advent of the septic tank. The septic tank is not an experiment. It has been proven beyond a shadow of a doubt that the proper kind of construction affords and provides a perfect sewage disposal, the effluent from which can be easily taken care of so that the same is sanitary and harmless. The septic tank is now available to every home, no matter where located, as many jobbers in plumbing supplies are now selling them, making them available to every plumber. An education compaign to instruct the plumbers in the installation of this product and its availability is under way, so that there is no excuse for any home not having sanitary appliances, enjoying their comfort, and safeguarding the health of the family.

PLUMBER HURT BY EXPLOSION

Montreal.—Wilfrid Derosiers, plumber, was badly burned by an explosion of gas in a house under construction. He was making a final examination of gas pipes with a lighted match.

Now's The Time

By King

THE OTHER day I heard a fellow say, Oh what's the use
Of rushing round the town for biz an' burnin' up good juice,
For folks don't want to buy things now, an' besides they're all away;
I'll just sit down and wait around 'till they're back from the holiday.

He thinks because some lucky stiffs leave town for their vacation
And spend two weeks in a country spot on well earned recreation
That the whole blamed world is gone to pot and business is on the blink
But only a numskull figures so for it shows he doesn't think.

The pickin's are good in July and August; the hustler knows right well
And a lot can be sold in those two months when you know how to sell.
There's great big red an' juicy plums a growin' all around
But you must get out an' pick them if you want them to be sound.

For the rural folk want septic tanks and water systems too
An' with plumbing fixtures and furnaces thousands of 'em can do.
For bumper crops on every side are a comin' right along
An' now's the time to go after sales and go right strong.

For every city dweller who goes right out of town
There's a dozen more a kickin' round waitin' to be run down
You can show these folk how to beat the heat and enjoy the ocean spray
By givin' 'em well plumbed baths and showers in the 20th Century way.

Price Cutting Gives Headstart to Trouble for the Sanitary and Heating Engineer

Reduce Overhead and Increase Profits by Doubling Volume of Business and Still Not Increase Gross Profit or Charge to the Public—Estimates Should Consider Defective Fittings, Delays for Inspection, Arrival of Material, Changes Due to Construction of Building, Etc.

Written for Sanitary Engineer by K. B. ALLISON

THE AVERAGE volume of business done by operators in the plumbing and heating industry is from fifteen to twenty thousand dollars each per year. Some master plumbers working without a mechanic do six to eight thousand per year, others employing one mechanic and themselves working with the tools regularly do twelve thousand dollars worth of work per year. Others again employing three mechanics and working mechanically part time themselves do about seventeen thousand. A reasonable average has been found to be five thousand per year for each mechanic. The class of business done by the majority of operators is a combination of jobbing and new or alteration work in both heating and plumbing. The figures given below are actual, except that the odd dollars have been removed, and are therefore quite authentic.

Merchandise Purchases	$6,500.00
Productive Labor	6,500.00
Overhead Expense	3,000.00
Net Profit	1,000.00
	$17,000.00

(Overhead is 17½% of sale—Net profit is less than 6% of sale)

Before we start to increase the volume of the above let us get this into our mind, namely, that the overhead expense percentage is much more likely to be higher than lower, in fact the scores of business statements I have seen have shown the percentage to be from 14 per cent. to 30 per cent. In the above instance they probably figured a lower overhead and a larger net profit but when the year was over it proved itself to be as above.

I am going to double the above volume of business because the addicts to the price cutting habit always state that the recompense for the reduced profit is obtained from the increased volume of business.

Merchandise Purchases	$13,000.00
Productive Labor	13,000.00
Overhead Expense	5,100.00
Net Profit	2,900.00
	$34,000.00

(Overhead is 15% of sale—Net profit is 8½% of sale)

We have reduced our overhead and increased our profit by doubling our volume and still have not increased our gross profit or charge to the public.

Mentioning our old friend the six room house job again we find the following figures:

Net Cost of Material	$235.00
Labor 8 days (64 hrs. 90c.)	66.60
Overhead and Profit (23½% of sale)	105.72
	$407.32

No Price Cut for Volume

Now get this and get it good—$407.32 would be the price which should be asked of the public if no more material was used than was figured, if there were no defective fittings, if there were no delays for inspection or arrival of material, if nothing was forgotten when ordering material, if no joists or brick walls or roof timbers caused a change in the original layout, if the mechanic took no longer than 64 hours, if our overhead expense and our net profit were to be kept down to the figures named, and if a host of other "ifs" did not transpire. And let those who criticize the high cost of plumbers, and those who suggest invoking the law to stop combines, tell me where either can exist when the type of job figured above, the type of job in nine out of ten homes being built in the City of Toronto to-day are taken at figures ranging from $325.00 down to $270.00. Where can any control of fixing prices exist, where can unduly enhanced plumbing exist, where can the public be robbed under such conditions. An attorney-general could well investigate the plumbing institutions with the idea of finding how many buildings would be required to provide homes for them. I have cited this comment on the plumbing of the average house to show that at the outset nothing has been provided for from which we can make a price cut so as to get business volume.

Granted, however, that these jobs sold for $410.00 and I being anxious to double my volume of business decide to cut 5% off my prices, and that in so doing I do succeed in doubling the volume of my business, that is I would do twice as much business with the total figures 5% less than double. Five per cent. of $34,000.00 is $1,700.00 which I would deduct from my profit and have left $1,200.00 or 3½%. If I made a 10% reduction on all sales I would make no profit and take $500.00 from reserves—in other words borrow it.

Can't Make Money by Price Cuts

I trust for the sake of the price cutter that I cannot see straight because my way of figuring makes it hard for me to know how money is made by giving part of it away in the form of a price cut. Perhaps I am dense, but I ask any exponent of the price cutting method who takes up the cudgels in their behalf to be sure to have definite figures and not a conglomeration of poor logic because I want to be shown by the two-and-two-makes-four method.

This applies equally to the supply houses in the business, I mean the wholesalers. From what I can gather their percentage of gross profit varies from 7½% to 20% (except in the case of some odds and ends, that is sundries where the percentage may be higher but the volume too small for consideration here.) Their cost of doing business varies from 14% to 18% although I have heard of it as high as 22%. There is not one in ten of them who succeed in paying an annual dividend, in fact, it is quite common to operate at a loss and thereby impair their working capital. Will someone kindly tell me how they can reach the dividend paying stage by the price cutting route, even granted by such methods they do increase their volume from say one hundred and fifty to three hundred thousand? "Ah, but," you say, "we do not give any 10% off our volume of business, we only give in cases where it is necessary to procure business that can only be obtained on the reduced price bait." Well then, will someone tell me why such a bunch of piratical robbers have not been cremated? "Tut, tut, boy," you say, "your ignorance is refreshing. Do you not know that that is one of the most ancient ways of getting business?" Ancient is right, something like the method, now ancient, of getting a fellow drunk so as to get his signature to an order. Price cutting—a

(Continued on Page 38)

The Slogan—Load it With Meaning

The Sad Gruesome Story of the Retailer
Who Shouldered an Empty Gun

or

What Happens to the Fellows Who Make
Mental Reservation to Promises

HERE is a sad, gruesome but instructive cartoon. 'Tis the picture of a poor retailer who didn't know the rules of the game—who forgot that the other fellow might be well armed too.

You know the old story of the bully with the empty gun. He got into an argument and pulled the gun at the first sound of strife. His opponent not knowing the gun was empty, drew his and fired with deadly aim. And of course the bully would have been much better off had he had no gun at all. Well—the same thing happened to the retailer.

And here is the story.

The retailer whose future home you see in the illustration employed a slogan in his store. He advertised in newspapers, direct mail campaigns, store cards, and everywhere else that he could hang the words, that every customer in his store would find:

"Satisfaction or money cheerfully refunded."

But it never worked out like the slogan. Apparently the retailer had a mental reservation that sounded like "you just try and get it back."

And folks who tried to return goods found the money was well glued to the store's cash drawer and there was nothing cheerful in the atmosphere.

There you have the retailer using a slogan dishonestly—and as he was to find out, he would have been much better off had he had no slogan at all.

He was in the position of the bully with the empty gun. The public thinking the gun was loaded with the bullets of Meaning was persuaded to buy—but finding the gun empty the public started to shoot its own gun called Gossip in which are used the deadly bullets called Resentment—and, well, the picture tells the rest. The retailer is buried in the grave of Failure.

Slogans are a good means of building business, but slogans are made to live up to—not to be ignored at every opportunity. And the retailers who use slogans in their stores should be certain that they are not making extravagant claims or promises and that those promises are maintained to the letter—and beyond it if possible.

If you promise in your slogan that you give prompt service, give it. Don't make the customer wait half an hour or a day beyond the time promised.

If you claim in your slogan that you guarantee everything you sell, guarantee your goods. Don't try to hedge when the customer asks you to make good.

If you promise to cheerfully refund money to dissatisfied patrons, refund it with a smile.

Live up to your slogans and you will build bigger trade. Show yourself to be a "good sport" and watch the good sports come back and trade with you. The world is what the retailer makes it—treat it square and it showers you with prosperity—treat it with contempt and you may put up the umbrella for the torrent of trouble that will fall your way.

By all means use slogans if you like 'em but make 'em honest—load 'em with meaning—and build bigger, better business with them.

Why Plumbers are Losing Profitable Trade in Connection with Water Heater Business

A Master Plumber Who Has Investigated the Subject Points Out That Gas Companies Maintain Uniform Price, Give Service and Allow Time Payments Whereas Some Plumbers Cut Prices and Make Inefficient Connections

EDITOR'S NOTE:—Discussing the water heater business recently with master plumbers, manufacturers and representatives of gas companies, Sanitary Engineer has learned that some dissatisfaction exists in connection with the present handling of this business.

Some time ago plumbers had the exclusive sale of gas water heaters in Canada, but much price cutting was done at that time by those who figured they could increase business in this way, and manufacturers subsequently considered it advisable to link up with some stable organization such as is offered by most gas companies. The latter plan has worked out well from this standpoint, these companies not only giving service, but maintaining uniform prices and offering facilities for the purchase of such heaters on time payments. The installations made by such companies are also said to give less trouble than some of those made by certain plumbers.

It is quite evident from the foregoing that the gas companies are favored by manufacturers of water heaters in the sale of their product for some very good reasons. Yet it is quite likely that the gas companies are interested in the sale of heaters primarily because they offer a means of increasing the consumption of gas. It has even been suggested by some that the gas companies would be willing to stand aside in the merchandising of such heaters if the plumbing trade went after the business aggressively.

Following are some remarks on this subject made by a master plumber:—

"SHOULD the plumber be eliminated from the water heater business? In some places the plumber has already lost his hold on this lucrative business. The business has practically been divorced from the plumber, and is now largely controlled by the gas appliance companies, the gas companies and the heater manufacturing companies themselves. This state of affairs was brought about principally by the faulty installations of the plumbers and the consequent annoyance and expense to which the manufacturers were put as a result.

"Automatic heaters are usually sold by the maker with a one year's service guarantee. The plumber would purchase and resell a heater, pocketing the profit, install the heater any old way, and if it did not work satisfactorily he would pass the buck to the manufacturer to make it good.

"The result is that the heater people decided to keep the profit and at the same time avoid the expense and annoyance caused by the indifference and negligence of the plumber.

"This article is written by a master plumber who has watched the trend of events, and the question that arises in his mind is, 'How long will it be before the plumbers in other districts will force a similar issue?' Already, in one of the larger cities, the heater manufacturers and dealers have been discussing such a move.

Postpone the Evil Day

"How about it, Fellow Plumbers? Can we not, by more careful water heater installations, postpone the evil day indefinitely? It can be done, but only by an intelligent understanding and appreciation of what to do and what not to do.

"Let us discuss some of the troubles of this business and the remedies for same. The one thing, in the writer's estimation, that is least understood by the plumber and which is the greatest source of annoyance and causes the most trouble with every type of automatic water heater, is improper ventilation.

"The average plumber, who has installed hundreds of ordinary tank heaters and combination heaters and who has been accustomed to putting in a three-inch vent, run out in any old way or in any old place, does not seem to be able to appreciate the difference between the ventilation required for a heater that consumes but 35 to 40 feet of gas per hour and a heater that uses three or four feet per minute or 180 to 250 feet per hour.

"An automatic heater consuming a large volume of gas absolutely must have sufficient vent properly installed to carry off the products of the combustion of a large amount of gas.

"If the vent is of insufficient size or is not carried to where a good draft is assured, then the heater will condense excessively. It will be found impossible to properly consume the quantity of gas required for the proper functioning of the heater. The heater may flare out at the bottom and the general results are unsatisfactory.

"No good mechanic would think of sticking a stovepipe out through the side of a building without expecting the stove to smoke, nor would he think of sticking the top of the stovepipe out through a roof even with the shingles or pitch of the roof and expect it to draw.

"He knows, and to be honest with ourselves, we all know, that in order to obtain a good draft that he must, if he runs his vent through the side of a building, carry the pipe high above the roof, not leave it under an eave. If through the roof, it must be carried well above roof or even with the ridge of same; that he must keep it away from or carry it above fire walls and adjoining buildings.

25% of Chimneys Defective

"All these things he knows, yet that same man will thoughtfully or obstinately put his heater vents in, in any old way, any old size and any old place, although it is just as essential that they be put in along exactly the same lines as a good chimney.

"Fully 25 per cent. of chimney and fireplace flues are defective in construction and will not draw well, yet the plumber has no hesitation when setting up his heater to connect his heater vent into such a chimney flue and expect his water heater to work efficiently.

"It has been found that the main trouble with defective chimneys is that they are too large for the purpose for which they are intended. When a plumber must use such a chimney for his heater, he should run his vent pipe down inside of same, thus assuring a good keen draft.

"A good plumber would not think of connecting an automatic heater into a chimney into which a coal or wood stove or furnace is connected. He knows that it is dangerous to do so; that an explosion or fire may be the result; yet, the same man will, on double bungalows or on flat jobs, connect two or more automatic heaters into one vent pipe. What is the difference? If the pilot for any reason should become extinguished in the heater in one house and the faucet be turned on, what is there to prevent an explosion in such a job any more than in the case of a flue where there is a coal or wood fire? Nothing! If no explosion occurs, it is due to good luck rather than to good management. If an explosion does occur, then again the plumber has been in the habit of passing the buck to the heater manufacturer, saying that the heater is to blame—that if the heaters were any good, there not have been an explosion.

Knocking Plumbers' Work

"If, on the other hand, the heater manufacturer, his agent or employee should dare criticize the defective installation, or honestly tell the owner

where the trouble lies, the plumber says the heater man is knocking his work.

"Sometimes the plumber will make a first-class installation in every way, good sized vent, run up the proper height, etc., and then spoil the whole thing by putting on a cap or cowl that is entirely inadequate, that has not enough clearance. He will, sometimes, to save the few pennies that a regular cap costs, take a piece of sheet metal, bend it over the top of vent stack and rivet it on. Not one in a hundred such caps have enough clearance. Some use a 'T' cap in which the center of the 'T' is reduced almost one-half in size. To put caps such as these on the top of a vent stack is equal to putting a board over a chimney and expecting it not to smoke.

"Another weakness of the plumber lies in his figuring of gas supply. I have known plumbers to connect an automatic water heater with a capacity of three gallons per minute to a five-light meter, using a run of some thirty feet of one-half inch pipe, and when the heater failed to show good results they blamed the heater and tried to convince the customer that he should buy a storage heater. 'Ye gods and little fishes!' is it any wonder that the manufacturer in self-defense is trying to market his product through men who understand heaters and their requirements, and who are willing and anxious to do the fair thing by them.

"The writer was recently called up by a heater agency to go out and investigate the complaint where a three-gallon automatic water heater had been installed and was not working satisfactorily. The owner on this particular job had been thoroughly sold on this particular automatic water heater by the agent at a previous industrial exhibit. When ready for a heater, the owner called in a local plumber and told him what heater he wanted.

"Did the plumber co-operate in selling this heater? He did not. He immediately tried to persuade the owner to use a storage heater. The owner, however, being thoroughly sold, insisted on an automatic heater. The plumber purchased the heater, making sure he was getting his discount; he connected it up to a five-light meter with a three-quarter gas line, ran his vent up under the canopy of the kitchen range, allowing it to terminate there. The heater, of course, would not work satisfactorily, and Mr. Plumber immediately said to the owner, 'I told you so.'

"He had been paid for the job, he had gotten his commission on the sale of a heater that he had actually been forced to buy, and then washed his hands of the whole affair. He passed the buck to the heater man. What is the result?

Disgusted With Plumbing

"This heater man has had so much trouble with plumbers' installations and so much opposition from plumbers who wanted to put in some other type of heater after he had already sold the owner on the merits of his heater, that he is thoroughly disgusted with the plumbing trade in general. Do you wonder at it?

"At the present time, in one city the agent for a well-known automatic heater has already practically eliminated the plumber, selling direct to the consumer at the same price they do to the plumber, and they install practically all the heaters they sell.

"The heater manufacturers and agents at the present time are, as a whole, friendly to the plumber and are more than anxious to court his favor, but if the evil practices spoken of are continued they will all be forced, like the agency mentioned, to sell direct to the consumer and make their own installations.

"The plumber, through his lack of enterprise, has let other business get away from him, all of which are profitable lines, and should, rightfully, be his. Is he about to sacrifice the water heater business in the same way?

"What do you say, Brother? Do we want to retain the water heater business, and if so, how are we going to do it?

"In the writer's opinion, it will be necessary for the trade associations to get together and have legislation passed regulating proper installation of heaters, standardize heater work, just as plumbing work is now standardized—but for the 'love of Mike' let us do something to retain this, the last of our profitable side lines."

SEWAGE PLANT FOR SCARBORO

Birch Cliff, Ont.—Reeve Croker and Township Engineer E. A. James will interview Works Commissioner Harris of Toronto and the Provincial Board of Health, relative to establishing a sewage plant in Scarboro.

NEW BUILDINGS FOR KINGSTON

Kingston, Ont.—Further consultations regarding the new library to be erected at Queen's University have been held and the plans which the architects have been working on have been accepted and tenders wil be called for shortly. An addition will be erected to the Regiopolis College this fall to provide accommodation for three hundred out-of-town students. The building will cost $300,000 and at the present time, the college authorities have the sum of $110,000 collected to pay for the new building.

WATER SUPPLY FOR MONTREAL NORTH

Montreal.—An expenditure of $160,000 is now authorized by the Metropolitan Commission for an improved water supply to the municipality of Montreal, North, pending a report of what part of this work may be completed this year. The question was brought before the meeting last week by a sub-committee report, which declared that a considerable number of houses had been built in Montreal, North, which were not yet occupied and it was urgent to lay pipes there. Further. if this improvement was carried out it would aid considerably in the development of the municipality.

After discussion the following motion was adopted:

"That the by-law of Montreal, North, for a loan not exceeding $160,000 be approved in principle, and that the plans for the extension of the water mains be submitted to the chief engineer of Montreal in order to ascertain what part of this work can be done this year; that the contracts be granted under the supervision of the metropolitan commission and that the work be paid for on progressive estimates to be approved by the said engineer."

Nothing Overlooked

A certain lawyer, while trying to learn from his client some particulars of a past event, cried out, "And now, I wish to tax your memory."

"Good Lord," groaned the poor client, "Has it come to that?"

QUESTIONS & ANSWERS

A QUESTION OF CHECK VALVES

(Enquiry).—Enclosed are rough sketches of two pumps that I installed for a customer of mine. The pump in the kitchen will not hold the water for any length of time. It is a No. 0 Goulds double action pump, and I put a check valve under it and it loses the water. I found when I took off the top of check valve with the pump full of water there seemed to be a kind of vacuum in the pipe and the water went back. The pump upstairs is the same size and I have no trouble with it.

There is a check valve in the well.

It is 1¼ in. galvanized iron from well and connects to pump, a 1 in. galvanized pipe with 1 in. gate valve on pipe for upstairs pump. They shut off the upstairs one and still it does not make any difference to the lower one. Would you please let me know if there is anything wrong in the installation.

(Signed) A. Mills
St. John's, Newfoundland.

(Answer).—The entire trouble is one of check valves. The gate valve shown on line to bathroom pump is not needed and a tight check valve on that line will do what is required without the necessity of having to operate it. Your trouble of having the kitchen pump lose the water can only mean one thing, that the check valves are not holding. The inch and a quarter pipe line which is falling from well to house may cause trouble in starting but once started should be quite O. K. It is also possible that leaky check valves may later cause the bathroom pump to draw some air from the kitchen pump and thereby minimize the draw of water from the well. There are check valves, the makers of which absolutely guarantee them as being impossible to leak. One check valve should be put below each pump and a foot valve in the well and if these are tight the job will work.

Patterns For Planer Hood

Written for Sanitary Engineer by O. W. Kothe, Principal, St. Louis Technical Institute, St. Louis, Missouri

SHEET metal workmen doing blow-pipes are well acquainted with the planer machine.

In this drawing we have a sketch of a planer hood used on the old style planers.

The new style is made straighter and is much simpler although larger.

On some of these new style high speed planes, as much as 300 feet of lumber passes through the machine per minute. So a person can see what a great volume of shavings such a machine will produce by running a few minutes, to say nothing about all day.

Our side elevation shows the general shape of the hood from an end view and the front shows how the sides are straight.

Now to save much production work, we lay out this hood similar to other hoods that require ordinarily a change of profile in order to get the true girth and the proper intersections.

So we first detail the side elevation making the Ogee curve A-D and B-C to suit the width of the base G-C and the top A-B.

Then draw the front elevation as D'-C' and A'-D' to the required widths, after which draw slant lines B-C and A-D.

Now divide the center line 1-15 in any number of equal parts and from each of these parts, extend points so as to intersect the side lines of front elevation as in points 1'-2'-3', etc., also 1"-2"-3"-4" etc.

Now these intersections will be as though we draw lines square, around each side of the fitting.

These lines will be the horizontal on all sides, and the corners will meet in true horizontal position, although the widths between spaces may change to suit the curve or slant in the outline.

But this will not change the horizontal position of the lines, whereby it may be thought that some will fall below or above the corners, which is not the case.

To set out the pattern for the side, pick each space separately from the elevation as 1'-2'-3', etc., to 15' and set these on a line O-P as 1'-15'.

Through each of these points, draw stretchout lines and then from each intersection in Ogee A-B, and also B-C of side elevation, erect lines until they meet with similar lines in stretchout.

Through these new intersections, sketch the uniform curve and you have the pattern. Squares to round can be added later. As both sides of front elevation flare alike, this pattern would be used for the other side also.

To set out the pattern for the front and back, pick the girth along the Ogee B-C of side elevation as 1'-2'-3'-4', etc., and set on the center line N-o' above front elevation.

Through each of these points, draw stretchout lines and then from each point in the side lines as A'-D' also B'-C' erect lines to intersect those in stretchout of corresponding number and this enables tracing the miter lines in pattern for throat.

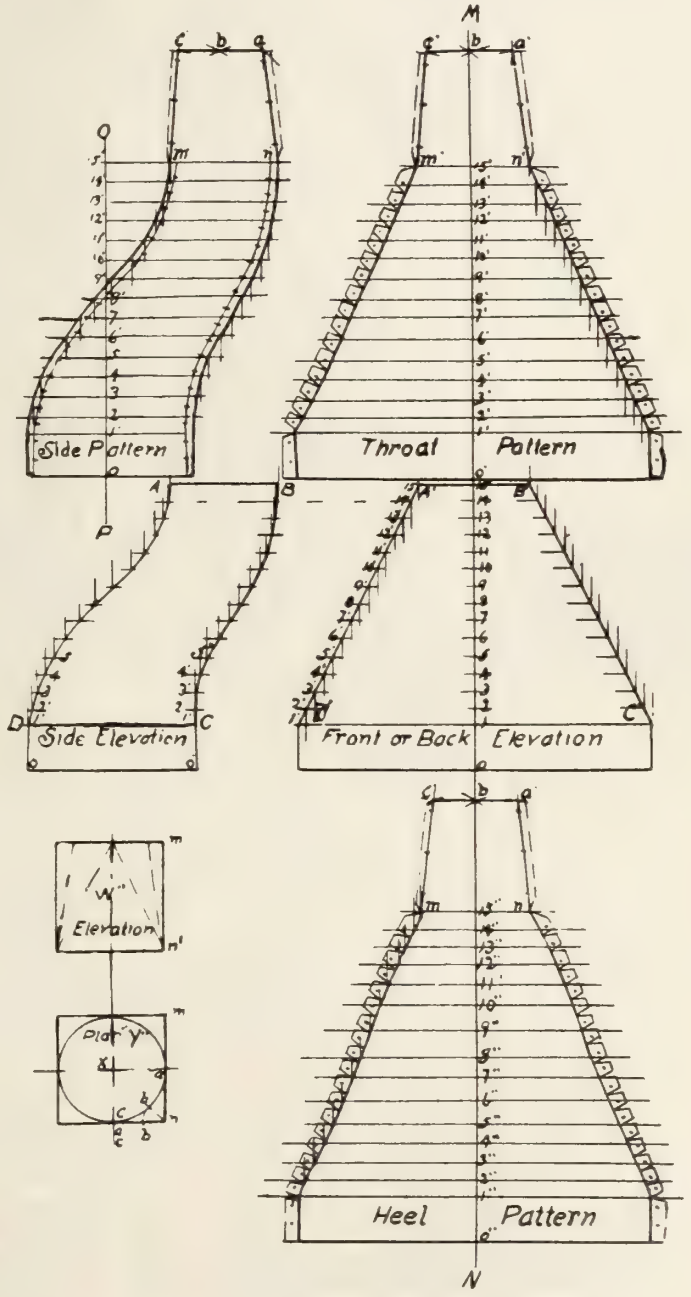
The same procedure will be followed for the pattern for heel. By picking the girth from the heel of side elevation as 1"-2"-3"-4", etc., and setting it off on the line b'-M.

After this, develop this pattern the same as the throat pattern.

The treatment of the square to round can be done as at drawings "W" which shows the elevation of "Y" in plan.

Square to round added on these fittings are generally proportioned to make their height m'-n' to equal the diameter of round pipe.

Otherwise, the patterns are laid out the same as any ordinary square to round. Edges must be allowed for riveting purposes as shown.



Patterns for Planer Hood.

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Extending the Span of Life

IN A RECENTLY published report by the Statistical Department of the Metropolitan Life Insurance Co., there is shown an increase of two and three quarters years in life span in the last decade and that the duration of life has been stretched a fifth in less than a generation.

The complete expectation of life at birth now is 54.3 years as compared with 51.5 in 1910 and 49.2 in 1901. The child born in 1922 is entered on Nature's books for five years more life than a child born at the opening of the century.

"This report also shows an improvement in the death rate in middle life and old age in spite of the fact that the pace has been swift and that everybody has been keyed up nervously to a higher pitch than ever before but there is a great deal of truth in the old phrase that Hard Work never hurts anybody." Apparently we are developing a stamina or nature is making the necessary adjustments to stand the demand on us. All life is a series of adjustments and re-adjustments.

There are a great many things that have been the means of lengthening man's life in the last twenty years and perhaps the greatest factor has been the spreading of information in matters of personal hygiene and the care of the children. When every person has an intimate knowledge of his body and its requirements, as a first class mechanic has of the machinery he is using, then will the span of life be still further increased. This is an old saying that cleanliness is next to Godliness but it is almost as important as the diet we eat, that our surroundings should be thoroughly clean and well ventilated. Our bodies should be kept free from perspiration and the dirt and grit which is found in the city and country alike. Frequent bathing is necessary as the skin helps the other elimination in getting rid of effete and poisonous substances which the body is constantly throwing off.

In infancy daily bathing is considered an absolute necessity and yet as the child develops and is allowed to run out of doors, it is not unusual to find the persons responsible for the youngster consider that a bath or two a week is all that is needed and there are still numerous people to be found who take a semi-annual whether they need it or not. A shower with a vigorous rubbing of the skin in the morning starts one out feeling fit and ready for the usual duties of the day, while a hot tub bath at night before retiring cleanses the skin, soothes the tired nerves and prepares one for a refreshing and invigorating sleep.

This is a beautiful old world of ours and if there is anything we as individuals can do to prolong our own lives and give the generations following a long lease of life it is apparently not only a privilege but also a debt we owe.

If by proper living and giving our knowledge to others we can increase the length of life another month or year we are carrying out one part of the plan. The architect, the contractor and the plumber have an important place to fill as by constructing properly planned houses, factories, offices and stores and seeing that the ventilation is adequate and the sanitary outfits are complete, up-to-date and installed by competent men, they are placing the means for the proper care of those who spend their time in the different places mentioned and not only does the efficient person be benefited by the good work done but he has also placed within the reach of others means to health and comfort, and the power of suggestion is wonderful.

Uniform Boiler Laws

WE UNDERSTAND that there is once more an effort being made by some of the various provincial authorities, to obtain a uniform law covering the construction of boilers throughout Canada, and including of course the various fittings and mountings comprised in the complete boiler. We have commented at various times on the desirability of such laws, not only for Canada, but also for international purposes. Why there should be any difference in boiler construction regulations is hard to see, because there can be only one correct standard, and that is the highest. There is but little difference in the laws of the various provinces of Canada, but in the States conditions are much more chaotic. The American Society of Mechanical Engineers has formulated a code, which we believe is high enough in its requirements to satisfy the conditions in any State, but we are not aware that that code is compulsory in every State.

Increased Use of Labor-Saving Devices

THE OUTSTANDING need for labor saving devices and the increasing market for these devices is well indicated in some statistics which have just been compiled. On the basis of latest census returns it is shown that in ten years, during which our population greatly increased, cooks decreased in number 21.5 per cent., chambermaids 26 per cent.; maids of all work 20.5 per cent.; home laundry workers 25.7 per cent. and the home dressmakers 47.5 per cent. On the other hand the increases in the number of women employed in wage-earning occupations and in the professions has greatly increased, for instance the number of teachers has increased 26 per cent.

Both from the standpoint of labor saving machinery in the home curtailing the amount of drudgery incident to housekeeping and from the standpoint of production of labor saving machinery, these figures are significant. As the domestic passes there comes a bigger-market for labor saving machinery, such as vacuum cleaners, washers, small electric appliances, dish-washers, etc. Evidence that the increase in production of such machinery and appliances has increased in proportion is found in the fact that in the ten years in question the number of mechanical engineers increased 160 per cent.; machinists 83 per cent.; electricians 77 per cent. and technical engineers 53 per cent. It is evident that a fairly large number of these men are making home appliances. The rewards of household work were never so high as today but despite this labor saving devices are receiving a bigger call. The housewife's necessity has been the mother of invention in the field of labor saving devices and the improvement which has been made in such appliances has found for them a permanent and increasing market.

Inventory

Banker—How much liquid assets have you?

Customer (cautiously)—About a case and a half.

"They say Binks is making a fortune selling short."

"Why, I didn't know he played the stocks."

"He doesn't. He runs a gasoline station."

Helping a Sick Man

A woman went into a cigar store to buy some cigars for her husband, who was laid up.

"Do you want them mild or strong, madam?" the clerk asked.

"Give me the strongest you have," she said. "The last ones he had broke in his pocket."

The new preacher was asked if he would like any special hymn to be sung to agree with his sermon.

"No," he replied. "The fact is, I hardly ever know what I am going to say until I arrive in the pulpit."

"Well, in that case," said the vicar, "perhaps we had better have that hymn 'For Those at Sea.'"

An experienced golfer, in a fit of condescension, invited a novice to a game. The novice, to the golfer's dismay and disgust, plowed up the ground all around the ball at every stroke. He stood it patiently for a while, but after one particularly vicious dig into the tee, he remarked:

"You're revoked."

"We're playing golf, not whist," said the novice.

"Yes," replied the golfer; "but you have just played a club where you should have played a spade."

A tourist in Scotland came upon a farm in a remote Highland glen.

"How delightful to live in this solitary spot," he remarked to the occupant.

"I'm no sae sure about that, sir," replied the farmer. "Hoo wad ye like to hae to gang fifteen miles for a glass of whusky?"

"Oh," said the tourist, "but you could keep a bottle."

The farmer shook his head, "Ay, mon," he said seriously, "whusky'll no keep."

"I Know Where The Flies Go--"

But Many People Do Not Seem to Care Where They Go in the Summertime and Don't Take Precautions — Plumber Should be Evangelist of Cleanliness

Written and illustrated for Sanitary Engineer by Major L. L. Anthes, President Anthes Foundry Company, Toronto

"I KNOW where the flies go, in the Winter Time."

But that is not the point—where do they go in the good old summer time?

There is a popular song which in a musical way is supposed to tell all about the "fly," but it does not tell "The truth, the whole truth and nothing but the truth."

There is also a story told—not a drawing-room story—which to my mind is much nearer the truth.

It is not considered good taste to print such stories, but when you have a lesson that you want to drive home, the end sometimes justifies the means.

Well here goes! (Those who are easily shocked please skip position between dotted lines.)

A city "office hound" who was seeking a few weeks recreation at a little up-country farm for summer-boarders, during the course of the morning of the first day, felt one of the calls of nature which come to all of us.

He sought out the farmer landlord and obtained the necessary directions to his objective which was some hundreds of feet away from the so-called "hotel."

About a quarter of an hour after he again met the landlord who asked:—

"Well, did you find it?"

"Yes, I found it," he answered, "but not for mine, there are enough flies there to eat you up."

"Let me give you a tip," said the landlord. "Wait until about ten minutes after the dinner-bell rings, then go back. The flies will all be in the dining room by then."

Crude isn't it?

But can you deny that there is a well of truth in this short but disgusting story?

When in your ramblings on a hot day through the woods, back lanes, and broad fields did you ever happen upon some putrid organic matter or deposit of filthy mess of some sort? Yes?

And what did you inevitably find?

Why! a swarm of flies!

The fly is undoubtedly the filthiest pest that walks, flies, or swims. Even the mosquito is a gentleman ((or perhaps I should say a lady) when compared to the fly.

So when you see a fly light on your food while you are at the table, it is a safe gamble that had you been able to follow the movements of that fly for a period of hours you would hesitate to eat the food he was impolitely walking over.

So in the country where there are not the sanitary conveniences essential to modern civilization, when you sit down to dinner at a fly infested table, it is a safe gamble as to where those flies had spent the morning.

Cleanliness is next to Godliness and there is no longer any excuse for the suburban dweller to live under the unsanitary conditions of the middle ages.

Give the children a chance to form habits of decency!

This is a slogan that should be pounded in the head of the stubborn farmer. Once he appreciates that the lack of bathing facilities and other modern conveniences reduce the efficiency of his whole establishment, I think he will begin to wake up.

(Continued on Page 38)

The Problems of Modern Marketing

The marketing of products is the big problem of the future—A phase of business which necessity is pushing rapidly to the forefront

Address by HARRY TIPPER, of Automotive Industries (business publication), at convention of Kiwanis Clubs, International, held at Toronto, Ont.

"IN CONSIDERING the industrial situation of to-day, we are confronted with the spectacle of a vast mechanical fabric of productive equipment employing millions of people capable of manufacturing more product than the domestic market has been willing to consume, and demanding constant movement of product in order that stoppage may be avoided and financial prosperity maintained. Up to a few years ago, the century of productive endeavor which has passed was devoted to the improvement of mechanical equipment and methods of manufacturing, transportation, and communication. The chemist, the engineer, the mechanical inventor, the explorer, the prospector, and the organizer found ample opportunity for constant development of their scientific attainments in the possibilities involved in the use of steam, electricity and other forces capable of supplying the motive power. As the production capacity grew, and the knowledge of production possibilities received a constant impetus from the energy, study and experience of the applied brains of industry exercised in this direction—the volume of goods produced through these increased facilities demanded a search for wider markets, a more extensive and constant pressure upon the markets, so that people would consume more goods and more people could be induced to use them.

Opening New Markets

"Intensively, for the twenty years preceding the great war, the industrial nations of the earth cultivated the available markets in the hope of seizing a larger and larger share of these markets for their own production operations, and in order to occupy the facilities and the population fully. This accumulation of production facilities and this search for wider and wider markets was furthered by the growth in rapid communication and transportation. The ends of the earth have been brought together so that for business purposes it is as easy to ship goods across the globe as it is to transport them to the next city. Markets which were previously inaccessible because of the difficulty of reaching them were opened up to a larger degree by the increased facilities for communicating and transporting. Discoveries of raw materials in various parts of the world led to the extension of industry from the limited quarters, which it occupied at the beginning of this era, until mills and factories are to be found to-day in all quarters of the globe. The industrial capacity has grown during the latter part of the century in mechanical production more rapidly than new markets can be discovered, and the time is approaching when the markets of the world, as they exist, will be charted and known wherever they are, while the tendency to put the increasing wealth of the world into new production facilities will add to the manufacturing capacity already existing.

Costs of Marketing Increase

"During the last 20 or 30 years a larger and larger percentage of the energy of business has been absorbed in the establishment, maintenance and supplying of products to the markets available for that production. Also, a larger and larger share of the energy of the individual business has been devoted to increasing the pressure of competitive effort on the market, so that the position of the individual industry or company can be maintained in spite of the increased manufacturing facilities and in spite of the larger number of units endeavoring to maintain their place. For these reasons the amount of energy and time spent in reaching, maintaining and supplying the market has absorbed a larger and larger proportion of the total cost of the product at the point of use. Selling, advertising and sales promotion, distributing, warehousing and all other costs of marketing have increased in their percentage proportion to the total price exacted from the consumer. Furthermore, while the costs of manufacturing decrease, or tend to decrease more slowly, the costs of marketing tend to increase more rapidly because of the surplus of manufacturing facility and the larger cost of reaching the wider market. A great deal is said regarding the cost of productive labor and many efforts are being made to reduce the wage scales of this productive labor because of their effect upon the cost. In most instances, the direct labor cost is not more than 15 or 20 per cent. of the cost exacted by the manufacturer, and if the product passes through several hands on its journey to the consumer, the direct labor cost in proportion to the price to be paid by the consumer frequently represents only 5%. Sometimes the total manufacturing cost of an article is only one third or one fourth of the price which must be exacted from the user when the product reaches that point.

Efficiency in Manufacturing

"A vast amount of attention has been given to the problem of efficiency in manufacturing. In this respect, the history of the mechanical system of business shows greater progress than any other. Great strides have been made in the mechanical system of transportation, in the facilities for speedy communication, and in the appliances for handling and warehousing. With all that, the marketing of products has not received the attention which has been bestowed upon manufacturing, and the best efforts of study, experience and analysis have been directed to the production and not the marketing of goods. This is well illustrated by the small number of books devoted to marketing and the comparative unimportance of these books as fundamental studies.

"Thousands of books have been written upon the single branch of manufacturing upon the various mechanical systems of transportation; the mechanical development in warehousing; port terminals, etc., but very little has been done to consider the efficiency of marketing operations and the tendency of their development. Modern marketing must take a larger percentage of the student's attention. It must be the subject of a greater degree of research and analysis, and its operations must be performed without so large a measure of speculative impression and so indefinite a knowledge of tendency. Sales organization and the work of the individual selling force are capable of a development arranged no less scientifically than the developing of manufacturing operations. Mass selling or advertising, as it is called, requires a much closer study as one of the factors of sound marketing, and in accordance with the character of all the factors involved in the marketing problem. Turnover must be studied not merely from the standpoint of its volume, but from the standpoint of the speed, and the individual item of turnover, so that the largest profit may be made on the smallest net percentage of the products turned over. It is significant that it requires a larger number of people to move $1,000 worth of goods than it did twenty years ago, and that, individually, these people receive more money for their work.

Cost Accounting in Marketing

"It is significant that while cost accounting and the analysis of cost has received great attention in respect to manufac-

(Continued on Page 26)

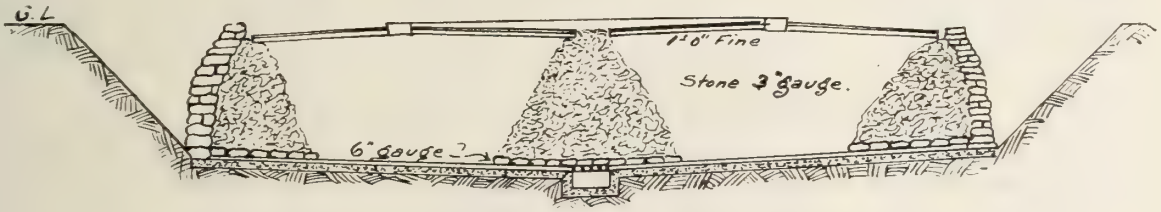
Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights —Keep the Entire Series Where It May Be Referred to And Studied

(Continued from last issue)

Figs. 77, 78 and 79 show a rectangular percolating bed excavated out of earth and built up of unjointed large clinkers or boulders, the interior of the filtering media being hard broken bricks. The floor of the filter is of concrete laid to a fall of 1 in 80 to a central effluent collection which discharges in an inspection manhole. (see last issue).

Figs. 80, 81, and 82 illustrate, on a small scale, the modern style of percolating bed used on the American continent. They are generally rectangular in shape and well underdrained with fixed nozzles or sprays for distributing the sewage over the filtering media.



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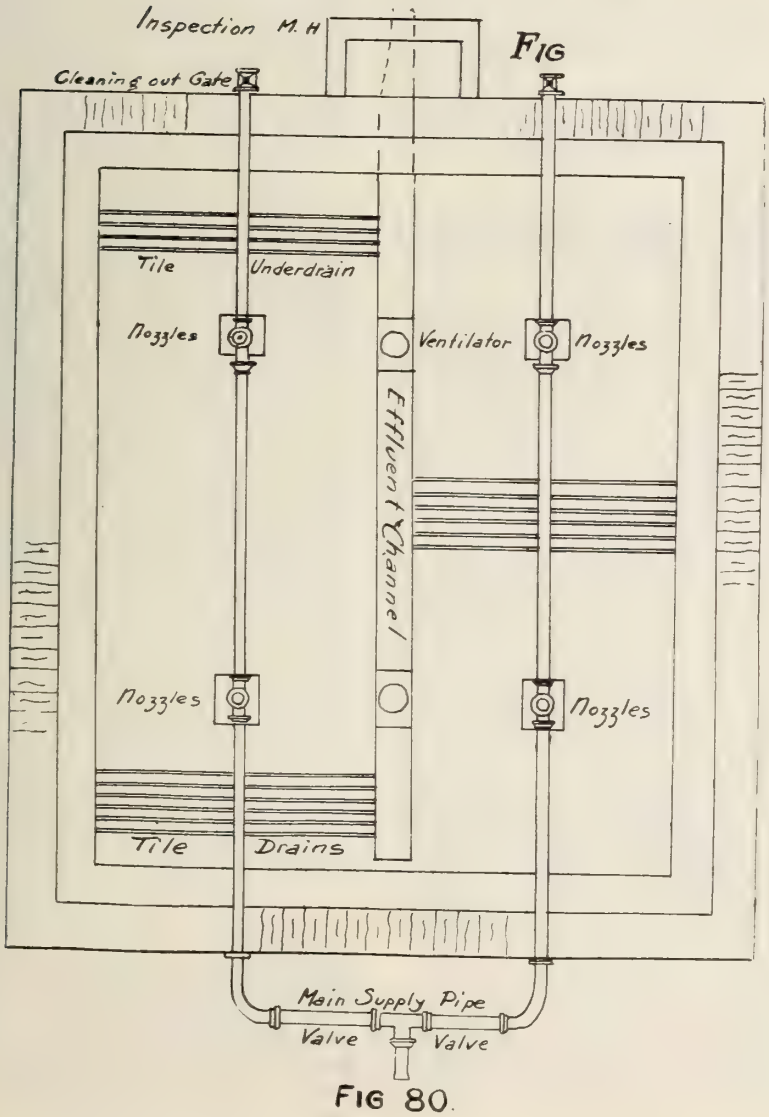

FIG 80.

The effluent channel and beds are well ventilated and the walls are constructed with bonded dry rubble.

Distributors

On all artificial beds sewage should be spread or uniformly distributed over the whole area of the beds at a standard rate of application which necessitates automatic apparatus, same for successful results should spread the sewage as in the form of rain. There are several methods of distributing the sewage and the following have so far produced the best results: Fixed Troughs and Pipes, Automatic Rotary Distributor, Fixed Sprays or Nozzles.

The Fixed Trough system is illustrated in Fig. 80 and is the cheapest method of distribution. It consists of cast iron or wooden supply channels recessed for the distributor which consists of V-shaped gutters with drip points, these are filled to overflowing and the sewage, travelling along the under surface, comes into contact with the drip points from which it drops in the form of rain over the filter.

Poor Service

In a questionable transaction Sammy gave Ikey a check for $100. But the check came back marked "No Funds." Ikey hurried to Sammy with the bad check.

"Vat kind uv business is dis?" demanded Ikey, flourishing the check.

"Vat's de matter mit it?" asked Sammy.

"Vell, can't you see? Look at it, ain't it marked 'No Funds?'"

"Vell, vell," said Sammy, "dots a hell uv a bank, aint it!"

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

FIRE LOSS

Ottawa Ont.—McKinley & Northwood, plumbers, suffered fire loss.

PERSONAL

Walter T. Newman, formerly of B. S. H. Thompson & Co., Ltd., and the British Smelting & Refining Co., has joined the Canada Metal Co. organization as sales manager in succession to Mr. Crow.

OBITUARY

J. B. A. Aubry, president of A. Aubry & Sons, Limited, tinware manufacturers, Montreal, died at his home in that city on Thursday of last week.

Mr Aubry entered the tinware business in 1887, at which time his father, Alphonse Aubry, was president of the firm. In 1908 his father retired and Mr. Aubry succeeded him to the position he held at time of death. He was a governor of Notre Dame Hospital, a member of the Chamber of Commerce, Board of Trade, Canadian Manufacturers' Association, Royal Arcanum and the Automobile Club of Canada. He is survived by his wife, three sons, and two daughters, also his father.

BEST GAME YET GOES TO PLUMBERS

Kingston, Ont.—The slugging plumbers worked their way to another victory in their group of the Mercantile League this week, when they just managed to edge away from the Bankers and came out on the long end of a 6 to 5 score. There was a bumper crowd in attendance and nearly every fan voted the contest the best that has been staged in the Mercantile League this year.

Both pitchers worked well and had about an even break.

Arneil, Lawless and Murray figured prominently for the Plumbers.

Plumbers—Arneil, 3b.: Hartley 1b.; Lawless, 2b.; Fenning, p.; Murray, s.s.; Ferguson, c.f.; Shangrow, c.; S. Richards, l.f.; H. Richards, r.f.

The scoring:	R.	H.	E.
Bankers 0021200	5	5	1
Plumbers 303000x	6	7	6

Umpire—Joe Daley.

FINDS SALES TAX TABLE HANDY

Sanitary Engineer has received the following letter from C. E. Meiklejohn, plumber and tinsmith of Workworth, Ont.

"I am a subscriber to Sanitary Engineer and I am writing to you to kindly send me a handy computation table for sales tax. I cut this table out of July 1 issue and had the misfortune to have it destroyed before I had it pasted.

Thanking you for this kindness.

(Signed) C. E. Meiklejohn.

BLOOM & BRITTAIN EMPLOYES HELD ANNUAL OUTING

Hamilton, Ont.—Employees of Bloom and Brittain, plumbers, and their friends to the number of sixty, spent an enjoyable time at the Dundas Driving park, the occasion being the annual picnic. The party motored out. There were races for children, three-legged races, a needle and thread sprint and a peanut race for the ladies. Captain Bloom's ball tossers defeated a nine headed by Walter Brittain. The score was 56 to 42. Mr. Bloom's team also won the tug-of-war contest. Refreshments were served and the picnic was voted the most successful yet held.

DOMINION SHEET METAL CORP. EXTEND PRODUCING CAPACITY

Hamilton, Ont.—Dominion Sheet Metal Corporation Ltd., will have additional equipment in operation by August 1 which will enable the production of 30 tons per day more of galvanized sheets than at present, or an addition of 50 per cent. to production. This firm has been operating in full at the rate of 60 tons per day since March 1 and in view of the continued demand and the good crop prospects, the additions to equipment have been made. This will give this producer practically 2,000 tons per month or 24,000 tons production per annum.

Discussing the extensions A. T. Enlow, president, stated that this increase will probably curtail the volume of imported galvanized sheets as only limited production of the domestic article has enabled such import business to be conducted. Mr. Enlow attributes the active business in galvanized sheets to the fact that prices are lower and as a result the old time demand is beginning to reassert itself, and a fair reduction in freight rates will make business extremely active in this line.

PROCEED WITH HEATING PLAN

Some progress towards the providing of heating for the Toronto civic arena was made when the Board of Control authorized M. F. Thomas, consulting engineer, to prepare the specifications, oversee the work, and install the heating equipment. It is estimated that the cost of the heating equipment will be about $130,000. Mr. Thomas is to be paid five per cent. on the cost. Specifications are to be ready by August 3rd.

The Board of Control has decided that the building is to be heated by oil rather than coal, although it will cost about $3,000 more for the necessary equipment.

WILL PUT SANITARY CONVENIENCES IN HOUSES

Ft. William, Ont.—The board of health in its regular monthly session received the report of the medical officer of health. The other business of importance was the sending to the board of works a request to have sanitary connections placed in a list of houses whose owners had been previously notified to have this work done.

STRIKE AVERTED IN OTTAWA

A strike of the members of the United Association of Plumbers and Steamfitters, Local 71, Ottawa, which it was feared might result with subsequent adverse effect on building, was averted when the members of the local decided to accept the counter proposals of the Master Plumbers Association and take eighty cents per hour, with an agreement calling for union conditions from July 17 to April 30, 1924.

The decision of the members of the local to accept the terms offered by the masters was not arrived at without considerable opposition, as some of the members felt that in view of the rate of ninety cents per hour, which is the prevailing rate in Toronto, the members of Local 71 should at least be given a rate of eighty-five cents per hour, which was the hourly rate stipulated in the original demands to the master plumbers.

Gratification at the amicable ending of the negotiations was expressed by Mr. J. W. Bruce, general organizer for the international, who conducted the negotiations between the two factions.

A Thrifty Customer

A big mail order house recently received an order from one Felix MacTanish, a canny Scottish farmer. It ran:

"Enclosed find one cent for which send me one faucet washer No. 89764," and the order came through on a postal card!

BURN SOFT COAL WITHOUT SMOKE

The Port Arthur shipbuilding company delivered to John East and Co., contractors of Fort Frances, a new smokeless heater boiler, of the Pascol modern type boiler to the Crawford Avenue school, west Fort William. John East and Co. have the contract for the building of the school. The boiler, built by the Port Arthur firm, is a double grate system and it is claimed will burn soft coal without any smoke.

SPREADING CITY SANITATION IN RURAL DISTRICTS

J. I. Robinson, general sales manager Crane Ltd., Montreal, is accompanying a demonstration truck designed to show rural people how they can have city conveniences. The small house on the truck is fitted out with a complete pressure pumping system, a bath room complete with bath tub, shower, lavatory, closet combination, all under water; also another compartment in which is shown a combination sink and laundry tray, also under water; a hot water heating boiler and a range boiler and heater. A reservoir underneath the truck body represents a well or cistern as a water supply source. The exhibit demonstrates in how small a space it is possible to install a complete bath room.

OAKVILLE MUST HAVE FILTRATION PLANT

Oakville, Ont.—Oakville has been notified by the Provincial Board of Health that until the town proceeds with the installation of a filtration plant, the plans for the auxiliary pumping plant will not be ratified. This caused much heated comment at the meeting. The local Medical Officer of Health agrees with the Council that a filtration plant is not needed.

A delegation consisting of Mayor Forster, F. W. Meek, W. D. Gregory, C. G. Marlatt and George Hillmer, will interview Premier Drury to find out why Oakville should install a filtration plant and what a filtration plant has to do with the holding up of the approval of plans for the auxiliary pumping station.

WATER METERS IN CITY ARE SUCCESS

Montreal.—Satisfaction is expressed by the city waterworks department with the installation of water meters in a section of Cotes des Neiges ward, the first experiment of this kind to have been tried here in this line having proven entirely gratifying.

The ward is supplied, in part, by the Montreal Water and Power Company, under contract with the city to supply the citizens of that section with water until 1931. As most of the population here engages in agricultural pursuits, it was found that the city was paying about twice as much to the company for the water sold to it by meter, as it was receiving in water rates from the users, the rate being based on the rental and property value.

ELECTRIC PUMPS AT WATER-WORKS SAVE

Montreal.—Savings of $12,000 effected in the waterworks department of the city have enabled this amount to be diverted, by vote of the executive committee, to other important public utilities.

As to what has enabled this enormous saving, the superintendent answered that it was due to cutting down expenses at the main pumping station on Atwater avenue, due to the substitution of electric pumps for the many steam pumps that were in operation before the administrative commission created the Montreal Water Board which carried out the change.

WILL ENFORCE PLUMBING BY-LAW

Guelph, Ont.—Ex-Ald. J. Zimmerman, Kitchener's new Building Inspector, is already in hot water, the plumbers of the city resenting his endeavors to enforce certain regulations which they claim are impracticable. The inspector has declared that he will enforce the by-law or resign. He was appointed only two weeks ago, resigning his place in the Council to take the appointment.

ENGAGE TORONTO FIRM ON SEWAGE SYSTEM

Hamilton.—Breaking a deadlock of three weeks over the appointment of engineers to prepare plans and reports of the sewage disposal project, estimated to ultimately cost $600,000, and provide for Hamilton's sewerage requirements when it has a population of 250,000, the City Council, by a vote of 12 to 9, engaged the Toronto firm of Gore, Nasmith and Storrie, in preference to James, Redfern and Proctor of the same city.

HALF A MILLION IN SEWER EXTENSIONS

Windsor, Ont.—Mayor Ulysses G. Reaume of Ford announces that the Ford Motor Co. of Canada will commence building operations on land recently purchased by the company.

The first building to be constructed, the Mayor said, would be 1,300 feet by 400 feet, and would be an extension of the present plant. It is to be completed by January 1. As a result of this activity, the Mayor urged that immediate action be taken to make improvements.

Sewer extensions are to be begun at once to cost in the neighborhood of $500,000, he said. E. McGiverin and A. A. Little, contractors, told the Council that 150 new houses would be built to take care of the expected increase in population.

Plumbing And Heating Supplies League Field Day

Unfavorable Weather Does Not Mar Big Program of Sports and Entertainment at Exhibition Park —Toronto Society D. S. & H. E. Picnic Coming on Thursday August 3

IT WAS unfortunate that rainy weather was the order of the day on the occasion of the second annual field day and picnic of the Toronto Plumbing and Heating Supplies League held at Exhibition Park, Toronto, on Saturday afternoon, July 22nd. In view of the rain those who attended withdrew to the shelter of the Transportation Building where spacious accommodation allowed the running of most of the races and the holding of other features provided on the program.

A fair number of master plumbers were on hand though the number was more limited than would have been the case had more favorable weather prevailed. There were also many familiar faces of those representing the various manufacturers and supply firms. The officers and players in the league extended a widespread invitation and it was well responded to considering the weather.

Favors were provided for the kiddies, games for the ladies and sports for the men folks and children. Plenty of refreshments were provided for all.

The program of sports as planned consisted of a ladies' invitation indoor baseball game, races for boys, girls, single ladies and single men, married ladies and married men, fat men's race, ladies' and gents' necktie race, ladies' ball-throwing contest, tug-of-war, married vs. single men, base-running contest, accurate catcher's throw, accurate fielder's throw, and a baseball game between the Domestic Sanitary and Heating Engineers and an all-star team.

Some of the contests had to be cancelled but many close finishes and much excitement marked the ones which were carried out. Garret Frankland, secretary of the society, surprised everyone with his fleetness of foot in the fat men's race.

Some surprise was expressed by a few of those in attendance that one with such creditable habits as "Billy" Hall should be put in charge of the drinks even if they were the 2½ per cent. variety.

Everyone enjoyed a good day's sport despite the handicaps, and all were eager to take advantage of the opportunity of renewing old acquaintances. The annual picnic of the Toronto Society, Domestic Sanitary and Heating Engineers, to be held on August 3rd, is being looked forward to.

Harves

This is harvest time for the farmer. The g
ped to the big elevators and the farmer, wi
with all the world and ready to turn his at
son's work in the fields.

This is harvest time for the Sanitary Engi
rural dweller in a position to equip the ho
keen competition however for the farmers
phonographs, and many other things is st
sanitary engineers of this country to make
of all if sales are to be made.

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SUPERIORITY PURITY DURABLE AS THE PYRAMIDS

Time

in is being mowed, threshed and ship-
p money safely in the bank is at peace
home surroundings after a hard sea-

he finest crop in years has put the
anitary conveniences. There will be
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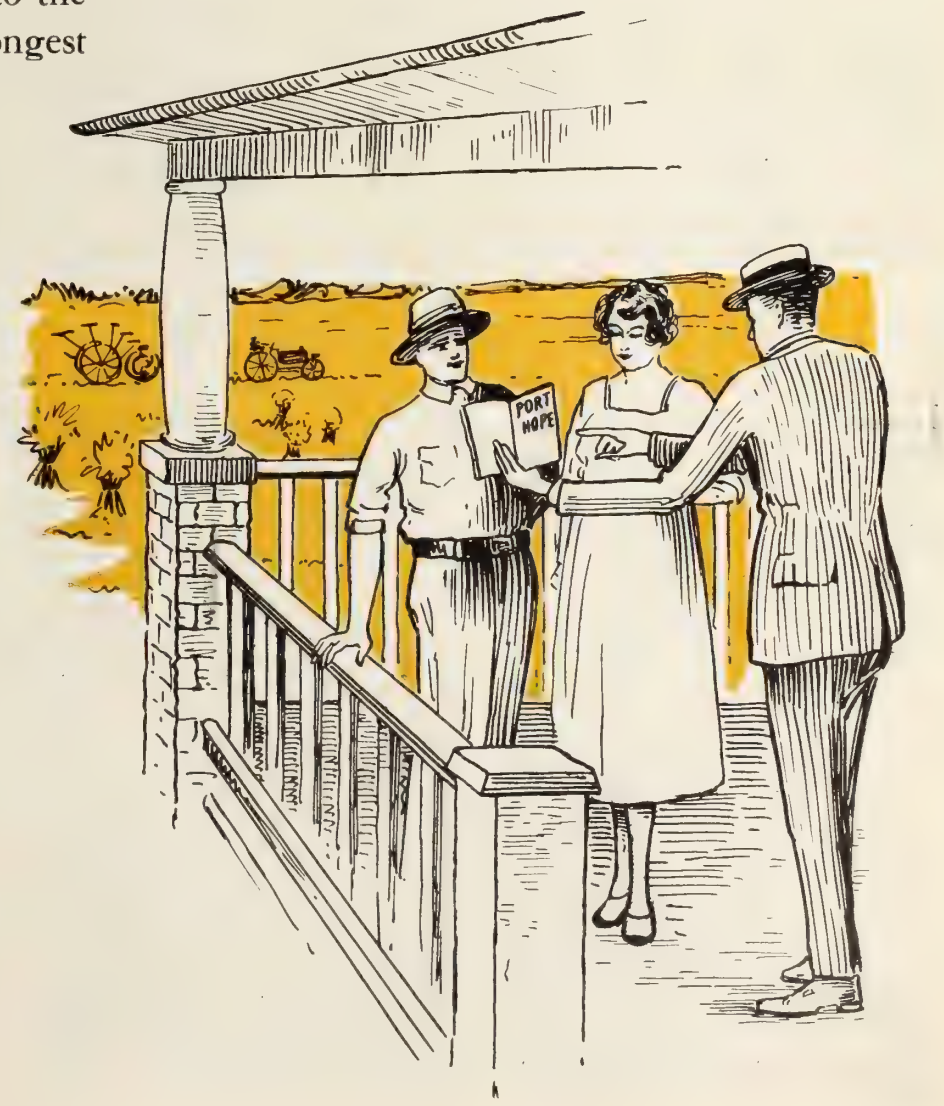

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Heated Discussion of Ottawa Plumbing By-law

City Plumbing Inspector in Argument Over the Plumbing By-law—Plan Proposed to Reduce Plumbing Cost 15%

THE discussion at Ottawa board of control over the plumbing bylaw resulted in almost open warfare between Plumbing Inspector Daughtry and Mr. M. M. O'Connell. Things became so warm that the board of control called a truce.

For many months the city has had the plumbing bylaw under revision. Then Ald. Brewer conceived the idea of having the members of council go to the technical school where the plumbing class would arrange for a demonstration of just what the changes would mean. The board of control was proffered assistance by Mr. M. M. O'Connell, and agreed to have him attend the meeting to make an expert report for the board. After the demonstration, the board asked him to confer with the plumbing inspector on the revision of the bylaw. Mr. O'Connell went ahead and made a number of suggestions which, he said, would greatly reduce the cost of plumbing.

Towards the last of May the board decided to ask what the charge would be, and Mr. O'Connell put in a bill for $825, with a letter that his work to complete the bylaw would cost from $1,500 to $2,000. This was several times larger than the amount the board expected to pay and the board did not have the temerity to recommend to council the payment of the account. It did, however, instruct Mr. O'Connell to stop work on the bylaw till the account was settled and a definite understanding reached.

Ald. Nolan, who has taken a great interest in the bylaw and who has also made a number of suggested amendments, was strongly opposed to Mr. O'Connell and his charge at the time. A couple of weeks ago, Mr. O'Connell arranged a demonstration of what he proposed and claimed his plan would reduce the cost of plumbing 15 to 20 per cent.

At the board Con. Ellis brought the question up as, he said, in justice to Mr. O'Connell, he should know that he had no binding contract with the city, as the board of control, without the sanction of the city council, had not any authority to employ him. In the discussion which followed, Con. Champagne and Ald. Nolan strongly sided with Mr. O'Connell. They were for plumbing which would cost less. The plumbing inspector and Mr. O'Connell had quite an argument on a number of points and veiled insinuations were passed. The mayor asked Mr. O'Connell to put in his full bill, at the same time expressing the opinion that the $825 bill was excessive. This is expected later when the matter will be again threshed out.

Unsettled Market in Furnaces and Ranges

Increasing Cost of Raw Materials Overshadows Freight Rate Reduction—Prevailing Quotations Considerably Firmer—Advances for Next Season's Trade Stated as Quite Possible

IN discussing the probable trend of prices on stoves and furnaces with a prominent range and furnace manufacturer, Sanitary Engineer was informed that the present upward tendency has the result of making any reductions for Fall trade more remote, and in the cost of basic materials at least stiffens the current quotations, even if advances are not made within a few months.

It was pointed out that the reduction in freight rates was very disappointing to manufacturers in point of extent, the net result of the 7½ per cent. decline being of a minor character on the finished product, and was entirely overshadowed by higher production costs on other items. These were mentioned as follows: coke, foundry iron, coal, and sheets and plates, all of which materials now cost considerably higher than was the case a few months ago, and this development will be reflected in production costs.

Some uncertainty therefore exists regarding future prices on these lines, it being apparent that such factors deserve close attention. The current movements in primary steel markets constitute an important element in stove, range and furnace manufacture, and while purchases of this nature are usually made for some time ahead, the fact that the coal strike has indirectly resulted in maintaining the strength of steel production circles, now forces manufacturing interests to a re-consideration of selling levels on the finished articles. Whether a price revision will actually result therefore, could not be ascertained as it was stated that no decision in this respect had as yet been reached. The opinion was expressed, however, that as certain manufacturers of these products had recently been inducing their agents and dealers to place orders, an upward movement in quotations was at least being contemplated. What the probable extent would be, if any, was another fact not available, but prevailing levels on ranges and furnaces are undoubtedly much firmer under these circumstances.

Another manufacturer also pointed out that a ten or fifteen per cent. reduction in freight rates, not only on the raw materials, but also the finished articles, would have constituted a direct incentive towards easier costs, as any downward change in the charges on heavy goods of such a nature would have been reflected in proportionate extent. It was admitted that the reduction in stove and range prices made effective last year was not of a startling character, but the precedent thus established could not be automatically followed in view of the conditions outlined, and in certain quarters advanced quotations are more or less expected.

THE PROBLEMS OF MARKETING

(Continued from page 20)

turing operations so that hundreds of books have been written upon it and thousands of men have spent their best years in order to improve possibilities—on the other hand, cost accounting in marketing is scarcely known. In the practice of one industry, each individual concern will arbitrarily include or exclude certain functional costs without regard to the analysis of their requirements. Little is known, therefore, about the cost of marketing products except in a general way. In an analysis made two or three years ago for a large company selling a number of products, it was found that 40% of the products billed out were billed at a loss and were being carried by the extra profit on the other 60%. Modern marketing must contend with the intense competitive effort for the securing and maintenance of the proper flow of product from the factory to the user. This competitive effort will cost more than the conditions of business will warrant, unless the efficiency of the marketing effort is increased so that the cost per individual unit is decreased and larger pressure can be secured without placing a further burden upon the user of the product.

"Experience without analysis, impression without investigation, and records of cost without any cost finding, are responsible for the large amount of avoidable waste in the marketing methods usually employed. These methods must be made to yield to analysis so that the work may be done with less waste, and, consequently, without a corresponding increase in the cost of the individual product. Modern marketing is just beginning its work. The proper values of advertising, the limitations of its uses, the purposes and limitations of individual selling—the economies of warehousing and the effect of turnover, are just beginning to suggest themselves to the average business man as important elements in his problem.

"Modern marketing demands the student and practical analyst; the careful investigator; and the man who can determine costs properly in their relation to function, because the problem of modern business is the problem of the market and not of the factory."

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

Markets at a Glance

A VARIETY of higher prices are announced on plumbing and steam-fitting materials. Bar iron and bar steel, galvanized sheets, copper and brass rods and tubing, are among products registering advanced levels, while a firmer trend has appeared in several markets as a result of primary conditions. These include furnaces, eavestrough, enameled ware products, radiators and wrought piping.

Ingot metals have developed a stronger tone, with spelter, lead and tin featuring the upward movement, each having recorded slight price advances. The surplus stocks of non-ferrous metals have now generally been taken care of and a little better demand on both primary and domestic markets has resulted.

The announcement from certain large American steel producers that they will be forced to close down unless a settlement in the coal strike is reached in the immediate future comprises one of the primary elements in the trade. The upward climb of prices is expected to continue as a result of these conditions. It is noted that in addition to the shortage of coal, there has developed a scarcity of cars at mill centres as a consequence of the railroad labor troubles. Domestic producers of such lines as are indirectly affected by these conditions, state that they are not yet seriously affected, but are admittedly watching the situation with marked interest owing to the question of deliveries.

A firm situation is evident in soil pipe and fittings, owing to rising production costs coupled with steady seasonal trade. An open market is now prevailing on heavy corrugated sheets in many quarters, quotations on 24 gauge and heavier sizes being made according to specifications and delivery, as was the case earlier in the season. While the strength of the sheet market and the higher prices on flat galvanized served to firm up the corrugated market, the falling off in trade combined with keen competition, are cited as the causes for the resumption of former conditions.

Montreal Markets

MONTREAL, July 29.—All price changes on the current market for plumbing and steam-fitting supplies record an upward tendency. A further increase of ten cents base is announced on bar iron and steel, this being the second revision in this direction during the past three weeks. Galvanized sheets again attract attention in the sheet markets when quotations on both Queen's Head and other brands are advanced twenty-five cents per hundred lbs. Plumber's oakum prices are also slightly higher.

The strong undertone in practically all lines of iron and steel products is still a feature of the markets, and this tendency is further strengthened by reports that the prolonged coal strike will have a more serious effect on the steel industry, if a settlement is not reached in the immediate future. A firm tone is evident in wrought pipe, and furnaces are reported on a much firmer price basis. Eavestrough, conductor pipe and corrugated sheets are firmer in price owing to the trend of flat sheets. Tin, copper and spelter record a fair amount of strength on primary markets, this tendency reflecting on the finished lead and zinc products.

ANOTHER TEN CENT ADVANCE IN STEEL PRICES

Montreal

Current quotations on the various grades of bar iron and steel are further advanced ten cents per hundred pounds. This revision marks the second increase in prices in the past three weeks, and reflects the steady upward trend in the steel industry. There is still a variation in quotations among local distributors but with the stronger tone continuing it is expected that price levels will reach a more uniform basis within the near future.

More recent developments in the steel industry relative to the coal strike, such as the announcement from some of the larger American corporations that unless a settlement in the strike is reached within the very near future they will be forced to close, now attract attention. In discussing the situation with local distributors it is pointed out that a much firmer tone will likely continue and if production is curtailed in southern steel plants it is only a question of time until this is reflected locally. Domestic producers are now watching developments with interest.

Following are average prevailing quotations:

Common bar iron, 100 lbs.	3 15
Refined iron	4 65
Irish finish machinery steel	3 20
Mild steel	3 15
Single reeled machinery steel	5 25
Band steel	3 50
Spring steel	4 75
Sleighshoe steel	3 15
Tire steel	3 35
Harrow tooth steel	3 30
Toe caulk steel	4 05
Mining tool steel, per lb.	0 20½
Black Diamond tool and cast steel, per lb.	0 20½

NOTE—Refined iron is approximately $1.50 per 100 lbs. over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs extra.

ADVANCE IN PLUMBERS' OAKUM QUOTATIONS

Montreal.

An increase of ten cents per 100 lbs. is made in quotations on plumbers' oakum and is now quoted at $6.60 per 100 lbs., or $3.30 per 50-lb. bale.

SOMEWHAT BETTER TRADE IN RANGE BOILERS

Montreal.

Business in range boilers has recorded a slight improvement in recent weeks and present trade is said to be quite seasonable. Building operations are demanding supplies of this product and sales are expected to continue in fair volume during the remainder of the summer and early fall. Owing to the continued firmer tone in galvanized

sheets there was a feeling among the local trade that galvanized products in general would perhaps stiffen in price. A local manufacturer stated that while undoubtedly the undertone of the market was strengthened by the trend of flat sheets, there was no direct indication that prices would show a revision. Following are list prices and discounts:

RANGE BOILERS—

5	Gallon	$13.50
12	"	14.00
18	"	15.00
25	"	16.50
30	"	17.50
35	"	20.50
40	"	22.75
52	"	38.00
66	"	60.75
82	"	74.00
100	"	103.00
120	"	117.00
144	"	164.00
168	"	187.00
192	"	210.00

Discounts, Standard weight, 50 per cent.
Extra Heavy, 40 per cent.

METAL MARKETS REFLECT ON LEAD AND ZINC GOODS

Montreal

Practically all metals on primary markets are recorded with a stronger tendency, and further advances in prices are given on some lines. This firmer tone continues to reflect on lead and zinc products, the trend of spelter being of particular interest at the present time. Quotations on the finished products are unchanged, but if the strength continues in primary circles, further advances in the near future would not be surprising. A fair volume of business for this season is reported at the following quotations:

LEAD AND ZINC PRODUCTS—

Up to 2"	13 00
2 to 8"	14 00
8" and over	15 00
Lead waste, per 100 lbs.	14 00
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	15%
Lead wool, lb.	**0 13½**
Lead sheets, 2½ lbs., sq. ft. lb.	0 10
Lead sheets, 3 to 3½ lbs., sq. ft., lb.	**0 09¾**
Do., 4 to 8 lbs. sq. ft., lb.	0 09
Cut sheets, ¼c. lb. extra and cut sheets to size, ¾c. lb. extra.	
Solder, guaranteed, lb.	0 26½
Do., strictly, lb.	0 24½
Do., commercial, lb.	0 21½
Do., wiping, lb.	0 22½
Do., wire, lb.	0 35
Zinc, sheets, casks	0 11
Do., broken lots	0 11½

ANOTHER ADVANCE IN GALVANIZED SHEETS

Montreal.

Galvanized sheets are still the outstanding factor in the sheet markets, and quotations on Queen's Head and other brands are increased twenty-five cents per 100 lbs. on all gauges. The one of this market is further strengthened by reports from mills to the South where the coal strike is now having a more serious effect on production. Deliveries from this source have been backward for some weeks past, and if production is curtailed distributors anticipate very little supply of American sheets on this market for fall trade. It is pointed out, however, that although the American market will in all probability firm up considerably in the following weeks, this centre will have the English market to look to and the future price trend will largely depend on the situation overseas. With regard to a more serious shortage of galvanized sheets if the coal strike continues, one local distributor stated that this would not likely reach the acute stage in this locality owing to comparatively easy access to the English market. The undertone in the market for tin plate and Canada plate is steady, but there is the absence of strength which is evident in galvanized sheets. Earlier fall bookings on the former product are expected to commence early next month. Prevailing prices are as follows:

BLACK SHEETS—

10 gauge, base	4 00	4 50
12 gauge	4 10	4 60
14 gauge	4 20	4 70
16 gauge	4 30	4 80
18-20 gauge	4 55	5 05
22-24 gauge	4 60	5 20
26 gauge	4 65	5 25
28 gauge	4 75	5 35

Sheets, 36" wide, 10c. per 100 lbs. extra.

GALVANIZED SHEETS—

Queen's Head—		
28 gauge	7 00	7 50
26 gauge	6 75	7 25
24 gauge	6 15	6 65
22 gauge	5 80	6 30
18-20 gauge	5 10	5 60
Other Brands—		
10¾	6 75	7 25
28 U. S. gauge	6 35	6 85
26 U. S. gauge	6 05	6 55
24 gauge	5 90	6 40
22 gauge	5 90	6 25
16 gauge	5 60	6 10

Theses prices are for full bundles, an extra charge of from 25c to 35c is made for broken lots. Extra for sheets 3 ft. wide, 28 gauge and 10¾ oz., 20 cts. per 100 lbs. Further extra for sheets 4 ft. wide, according to gauge.

TIN PLATE—Coke

20 x 28 x 100 lb. basis	13 00
20 x 28 IC, 112s	13 50
20 x 28 IX, 112s	15 50
20 x 28 IXX, 56s.	9 00
20 x 28 IXXX, 56s.	9 75

TERNE— PLATE—

20 x 28 IC, 112s.	14 00

CANADA PLATE—

Dull, 52s	5 00
Dull, 60s	5 10
Blued 52s	5 25
Blued 60s	5 35
Welsh, polished, 52s	7 00
Welsh, polished, 60s	7 25
Galvanized, 52s.	7 25
Galvanized, 60s	7 75

IMPROVEMENT IN DEMAND FOR ASBESTOS PRODUCTS

Montreal

Current quotations on asbestos products remain unchanged with the market said to be somewhat improved owing to increased demand. Business is now described as fair, and greatly improved over the earlier months when building activities had not yet commenced in earnest. Unchanged prices are as follows:

ASBESTOS PRODUCTS—

	Off list prices
2 ply pipe covering	67½%
3 ply pipe covering	65%
4 ply pipe covering	60%
85% magnesia	45%
	Per bag
Boiler covering	1 50
	Per 100 lbs.
Asbestos sheathing	7 50

STILL STRONG TENDENCY IN FURNACE PRICES

Montreal

While there is no indication up to the present of a revision in furnace prices, there is still the stiffening tendency owing to higher production costs. One manufacturer stated that in his opinion the trend is undoubtedly in an upward direction, whereas a reduction in prices for Fall trade appeared a little earlier in the season. Bookings were thought to be an important factor in the market at present and dealing with sales for future deliveries he stated that business was quite active in the larger centres but in rural districts it was more or less backward to date. With a further general strengthening of iron and steel prices, the trend of the market for these products will be watched with interest by the trade.

FIRMER TENDENCY IN TROUGH AND PIPE

Montreal

There is still a good amount of activity among manufacturers and distributors of eavestrough and conductor pipe, and if the present movement continues during the remainder of the summer a record season is promised. With the stronger tone in galvanized sheets, and the present shortage on the local market, manufacturers of these products describe the market as decidedly firmer, which tendency is further augmented by prevailing business. List prices and discounts are as follows:

EAVESTROUGH:

O. G. round and half round, per 100 ft. 8 in., $16.90; 10 in., $18.70; 12 in., $22.20; 15 in., $29.80; 18 in., $37.80.

O.G. Square bead, per 100 ft.: 8 in., $15.90; 10 in., $17.70; 12 in., $21.20; 15 in., $28.80; 18 in., $36.80.

Discount 70|10 per cent.

CONDUCTOR PIPE—Round, Plain and Corrugated. per 100 ft.; 2 in., $18.40; 3 in., $22.30; 4 in., $29.60; 5 in, $40.00; 6 in, $49.00; 6 in., $49.00.

Discount 70|10 per cent.

CONDUCTOR ELBOWS—

Plain or corrugated, price per doz.
2 in., $5.25; 3 in., $6.00; 4 in., $10.50; 5 in., $24.00; 6 in., $29.00.

Discount 60 per cent.

NO CHANGE IN PRICE ON COMPRESSION GOODS

Montreal

With the undertone of the market for the various lines of brass valves and bibbs remaining quite firm, there is no change made in prevailing prices. Manufacturers of these goods state that although higher price levels were thought likely owing to recent increases in costs of raw metal, it was decided to maintain present quotations for the immediate future at least. There is still a fair amount of business owing to activities in building circles, and following are present discounts:

Compression work, standard	45%
Fuller work, standard	30%
Quick opening compression bibbs	43%
Bath cocks, quick opening	41%
Bath cocks, compression	41%
Basin cocks, quick opening	46%
Flatway stop and waste cocks, standard	54%
Roundway stop and waste cocks, st'nd'rd	46%
Brass steam cocks, standard, ¼ in.	50%
Radiator valves, standard	58%
Do., removable discs	58%
Globe, angle and check valves, standard	25%
Gate or straightway	25%
Emco globe valves	33%
Emco check valves	33%
Jenkins globe, angle, check and swing check	19%
Jenkins gate or straightway	25%
Jenkins iron body, globe and angle	15%
Jenkins iron body, gate	33%
N.P. "P" and "S" traps	40%

STRONG UNDERTONE IN WROUGHT PIPING

Montreal.

Wrought iron and steel piping prices are unchanged with the market still in

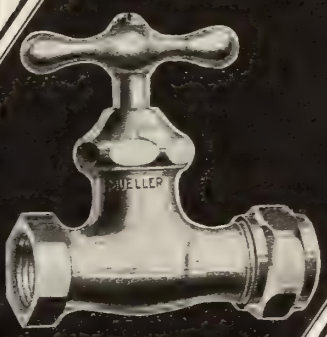
(Continued on Page 30)

MUELLER

Compression Stop Cocks

Beauty of design—freedom from sharp angles and creases—and the ease with which they can be kept clean—make MUELLER Compression Stop Cocks especially desirable for residence plumbing.

The well-known MUELLER quality of materials and workmanship insures that dependable service which builds reputation for the wise plumber.



Each MUELLER Cock is tested to withstand 200 pounds hydraulic pressure—and is fully warranted.

The four Cocks here shown are a few of the many MUELLER patterns—all designed to meet specific requirements.

Write today for detailed information and prices. Mail orders given immediate attention.

H. Mueller Mfg. Co., Ltd.,
Sarnia, Ont.
Water, Plumbing and Gas Brass Goods and Tools
American Factory at Decatur, Illinois, U. S. A.
Branches, New York and San Francisco

Mueller Metals Co., Port Huron, Mich., Makers of "Red Tip" Brass Rod; Brass and Copper Tubing; Forgings and Castings in Brass, Bronze and Aluminum; Die Castings in White Metal and Aluminum; also Screw Machined Products.

MONTREAL MARKETS
(Continued from Page 28)

a strong position. Manufacturers of this product state that they are watching recent developments in the steel industry generally, realizing that a continued stiffening tendency is altogether probable considering the more serious effect the coal strike is bound to reflect if a settlement is not reached. It is pointed out that the American pipe market is also very firm with mills behind in deliveries, but up to the present there is no definite indication that a revision in prices will be made.

PIPE FITTINGS RECORD LITTLE CHANGE

Montreal.

Demand for pipe fittings continues in fair proportions, trade showing a slight improvement in the past few weeks. Quotations on the different lines are unchanged and the market is described as steady at following quotations:

PIPE FITTINGS—	
Cast iron fitting	30%
Plugs, cast iron	30%
Do., solid	30%
Do., countersunk	30%
Bushings, cast	32%
Do., malleable	32%
Unions	47%
Flanged unions	30%
Flanged fittings	30%
Dart unions, black, 33	1-3%
Dart unions, galv.	13%
Nipples, 1-8 to 4", close and short	60%
Do., long	65%
Do., 4½ to 8", close and short	50%
Do., long	55%
Couplings, 4" and under	30%
Do., 4½" and larger	10%

Malleable Fittings—
Piece list effective June 1st, 1922. Discount 70-5 per cent.

SOIL PIPE QUOTATIONS FIRM BUT UNCHANGED

Quotations on both soil pipe and fittings remain unchanged with current trade described as quite satisfactory for this season of the year. There has been an improvement in the movement of these products since building commenced in the early summer months and this is being well maintained up to the present. Dealing with the firming tendency in iron and steel products generally owing to the continuation of the coal strike, a local manufacturer stated that up to the present the effect of this had only been sufficient to bring the market on a firm basis but if a settlement was not soon in sight it would undoubtedly have a more direct bearing on both of these products. Following are unchanged discounts:

SOIL PIPE—	
2 and 3 inch	40%
4 inch	45%
5 and 6 inch	40%
8 inch	20%
Fittings—	
2 to 6 inch	50%
8 inch	20%

COTTON WASTES FIRM: UNCHANGED IN PRICE

Montreal.

Although higher prices have been announced on cotton wastes in other outside markets, local prices are still unchanged. The undertone of the market continues firm but dealers anticipate little change in the near future owing to the season of the year and present demand. Following are unchanged price levels:

COTTON WASTE—Cream polishing, 18c. per lb. White—XXX extra, 16c.; XX grand, 15c., XLCR, 14c.; X Empire, 13c.; X press, 11½c.
Colored—Fancy, 13½c; Lion, 12c; Popular, 9c; Keen, 7½c.
Wool Packing—Arrow, 24c.; Axle, 20c.; Anvil, 16c.
Dominion Wipers—White cotton, 20c; colored cotton, 14c.

SEASONAL TRADE IN CLOSET COMBINATIONS

Montreal

With trade in closet combinations continuing on an improved basis owing to activity in building operations, quotations are unchanged as follows:

CLOSET COMBINATIONS—	each
Closet, standard low down outfit	$25 00
Do., post hinge seat	26 00
Do., oak vitro, back strip seat	27 75
Do., oak vitro, post hinge seat	28 40
Do., china tank and back strip seat	28 50
Do., china tank post hinge seat	29 50
Do., vitro white with post hinge seat	30 75
Reversible trap bowl, less spud	11 25
Wash down bowl, less spud	10 00
Richelieu bowl	9 00
Siphon jet bowl	16 25
Extra for spud	0 60
Add for ⅜ in. valve on supply pipe	1 25
Add for bar hinge	No extra
Deduct for supply pipe	0 80
Deduct for floor hinge	0 60
Wood strip seat and cover	3 05
Post hinge seat and cover	4 25
Oak or oak vitro tank, with fittings, less seat	14 25
White vitro, vitreous china or enameled iron tank, with fittings, flush elbow and supplies, less seat	18 50

ENAMELED WARE ON AN IMPROVED BASIS

Montreal

Present demand for enameled ware continues fair with a good amount of activity in building circles. Quotations are reported on a somewhat more uniform basis, price-shading not being as extensively carried on as earlier in the season. One of the chief reasons for this, according to distributors, is the firming tendency in primary markets where production costs are higher owing to increasing price levels on materials relative to the steel industry. List prices and discounts are as follows:

ENAMELED WARE—			
Sinks, roll rim—			
18 x 30			$23 00
Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$ 7 50	$ 7 40	$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in wide			51 40
Bath tubs, 5½ feet.			57 10
Lavatories—			
17x19 in. Apron F139 or P4045			15 30
18x24 in. Apron F154 or P3845 or P3847			23 60
18x21 in. Apron F169 or P4205			17 60
17x19 in. Roll rim. F241 or P4345			12 60

Less 33 1-3 per cent.

STRENGTH STILL APPARENT IN MOST INGOT METALS

Montreal.

The firmer tone evident in the ingot metals during the past few weeks is again well maintained, tin, copper and spelter showing a fair amount of strength at the present time. Tin continues to advance on the London market although present quotations are higher than at any time since early in the year. Copper is quiet both on domestic and other markets but the undertone is steady to firm. Spelter, which was the strongest metal on the list one week ago, continues on its upward climb and is now quoted at over six cents, East St. Louis. It is stated that this metal is now affected by the prolonged coal strike, although otherwise the market appears to be in a healthy position. Antimony is quiet and there is very little change in aluminum, this metal remaining very dull.

Toronto Markets

TORONTO, July 29.—The upward trend to prices on sanitary and heating goods is again in evidence, several revisions of this nature having been recorded. These changes are principally the effect of the steel situation, with higher pig iron prices and the threatened scarcity of coal, being two main factors. Higher quotations appear on copper and brass products, such as rods and tubing. Another increase of ten cents per cwt. is recorded on bar products, this being in addition to the previous general adoption of the $3.15 level. Galvanized sheets show an advance of 35 cents per 100 lbs., although black and blue-annealed sheets at present remain unchanged in price. There have also been some minor revisions in boiler tube quotations. Furnace prices attract attention owing to rising production costs. Ingot metals are also developing a firmer trend, spelter, lead and tin all registering varying gains in price.

ANOTHER INCREASE IN BAR PRODUCT PRICES

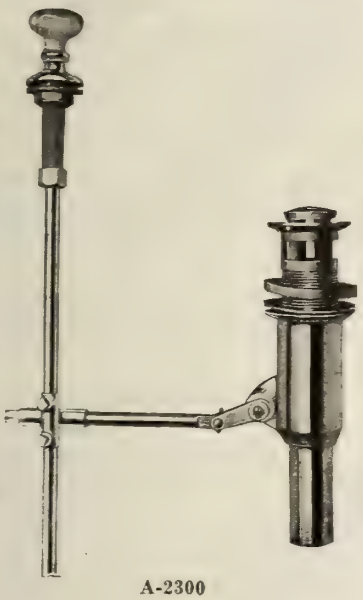
Toronto

Two distinct price advances have been recorded on bar products during the past few days. From showing a general firming up to the $3.15 base, quotations have since risen another ten cents, thus giving the average level of $3.25. This upward climb represents the insufficiency of transportation and lack of coal in southern primary markets, which developments have been responsible for a curtailment in steel production. The coal shortage is assuming a more serious stage and following the banking of several furnaces in the American fields, has come the institution of priority regulations by the Interstate Commerce Commission governing the distribution of available coal supplies. This ruling places iron and steel in the fifth group along with general industry.

Owing to the rising trend in pig iron prices, this similar increase in bar product quotations was more or less ex-

(Continued on Page 32)

UNEQUALLED



A-2300

A-2300 DESCRIPTION

Allingham Pop-up Basin Waste (Patented) nickel-plated, with china waste knob. Indirect action (raising knob closes plug, lowering knob opens plug).

MEASUREMENTS

Diameter of flange under waste knob.....1¾″
Diameter of flange inside bowl.....2-⅛″
Diameter of flange below bowl .....2-5/16″
Diameter of Spud .....1½″
Outside diameter of outlet tube.....1¼″

These Twentieth Century Fixtures have **Twentieth Century merit.**

A-2500 DESCRIPTION

QUATURN* Combination Double Shampoo and Basin Cock, nickel-plated, with ball-check tail pieces, china index handles, rubber tube, and N.-P. spray.

MEASUREMENTS

Center of cock to center of spout outlet .....3-⅝″
Bottom of flange to center of shampoo tube outlet .....10-⅜″
Diameter of flange .....2½″
Bottom of flange to end of tail pieces .....7¾″
Center to Center of tail pieces .....2½″
Diameter of shank (¾″ I.P.S.) .....1.05″
Width of faucet over all .....6½″
Length of rubber tube .....24″
Diameter of spray .....2½″

A-2500

This Quaturn Shampoo Faucet has Quaturn standardized **working unit** —the only part that wears—renewable at moderate expense—**the bodies stay installed permanently.**

The Wallaceburg Brass & Iron Manufacturing Co., Limited

WALLACEBURG, ONTARIO

TORONTO OFFICE:
10 Wellington St. E., Phone Main 2355.
Mr. L. N. Vanstone.

MONTREAL OFFICE:
10 Victoria St., Phone Uptown 945.
Mr. G. M. Price.

WINNIPEG OFFICE:
Moncrieff & Endress Ltd., Galt Bldg.,
Telephone: A. 9135.

TORONTO MARKETS
(Continued from Page 30)

pected. The situation as affecting steel and steel products generally is being keenly watched, in view of the direct reflection on domestic prices and current conditions. New price levels follow:

IRON AND STEEL—

Mild steel bars, base	3 25
Mild steel bands, 3-16 in. base	3 75
Bar iron base	3 25
Angle iron base	3 35
Horseshoe iron	3 85
Tire steel	3 45
Spring steel	8 00
Toe caulk iron	4 10
Hoop steel	4 10
Norway iron	12 50
Sleigh shoe steel	3 25
Crucible cast sheet steel	28.00
Mining Drill steel	18.50
Cast tool steel, high grade	30 00
Do., do., Medium	18.00

MINOR REVISIONS IN BOILER TUBE PRICES

Toronto

Another revision in boiler tube prices has been made, this time the change showing a distinct upward tendency. The large sizes of seamless tubing record a slight reduction, but minor increases are noted on other sizes and also on certain sizes of lapweld. The market governing these products is still described as nominal, and the new quotations merely represent the average levels at which trade in boiler tubes is being consummated. Repair work to heating plants is reported as bringing a fair amount of small business, while the developments in the steel markets generally reflect a much stronger tone and upward price tendency on the finished goods.

BOILER TUBES—

	Seamless	Lapweld
1 inch	19 00	.....
1¼ inch	20 00	.....
1½ inch	20 00	.....
1¾ inch	21 50	.....
2 inch	20 00	16 00
2¼ inch	22 00	19 00
2½ inch	23 00	20 00
3 inch	27 00	24 00
3½ inch	32 00	28 00
4 inch	41 00	35 00

MARKED PRICE ADVANCE ON GALVANIZED SHEETS

Toronto.

Another advance of thirty-five cents per 100 pounds is recorded on galvanized sheets, this development being a direct result of the coal and rail strikes in the U. S. and their combined effects upon the steel industry. As noted in recent reports, galvanized sheets have been in good demand and the curtailment in production due to coal shortage resulted in a scarcity of these products. Consequently, quotations are climbing and the rise recorded this week, while being of a more extensive nature than recent changes in this direction, serves to emphasize the serious side to the situation from a production viewpoint. A higher sheet market has been more or less freely predicted during the past week or two, as the continuation of the coal strike and the shortage of cars resulting from the tie-up in rail transportation, brought forth the announcement from southern mills that several furnaces had to be banked. Consumers continue to exhibit marked concern over delivery. Following are average revised levels:

BLUE ANNEALED SHEETS—

10 gauge, base	4 00
12 gauge	4 05
14 gauge	4 10
16 gauge	4 15

BLACK SHEETS—

18-20 gauge	4 80
22-24	4 85
26 gauge	4 90
28 gauge	5 00

A charge of 25c per 100 lbs. is made for less than case lots. An extra 10c per 100 lbs. is also charged on sheets 26 in. wide.

	Queen's Head
28 gauge	7 50
26 gauge	7 25
24 gauge	6 65
22 gauge	6 30
18 and 20 gauge	6 10

	Premier and Apollo
10¾ oz.	6 75 7 30
U. S. 28, base	6 35 6 90
U. S. 26	6 05 6 60
22 and 24	5 90 6 45
18 and 20	5 75 6 30
16	5 60 6 15
12 and 14	5 45 6 00

An extra is now charged on galvanized sheets, 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20 cents per 100 pounds. Other gauges show no change for different widths.

An extra 40 cents per 100 lbs., is charged for Keystone and Premier brands copper-bearing sheets.

IMPROVED SITUATION IN ENAMELED PRODUCTS

Toronto.

Enameled ware products are now registering a fair seasonal demand, and quotations are reported more uniform between the various jobbing houses. The rising cost of steel production, the shortage of coal and other contributary elements in the miners' and railroad strikes, have the effect of increasing manufacturing costs on enamel goods, as pig iron, coal and steel, are all higher in price. The market situation is, therefore, reported firmer at unchanged quotations, which follow:

ENAMELED WARE—

Enameled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.	51 40
Do., 5½ ft.	57 10
Lavatories—	
17x10" Apron F139 or P4045	15 30
18x24" Apron F154 or P3845 or P3847	23 60
18x21" Apron F169 or P4205	17 60
18x21" Roll Rim, F197, F199 or P4655-6	15 40
17x19" Roll Rim, F241 or P4345	12 60
Sinks, Roll Rim, 16x24 in.	18 10
Do., 18 x 30 in.	23 00
Do., 20 x 30 in.	24 70

Sinks, Flat Rim—	3 only	2 only	1 only
16x24	$7 60	$7 70	$7 80
18x30	8 50	8 60	8 70
20x30	9 70	9 80	9 90

Above prices, list, less 33 1-3 per cent.

All steel enamel baths, 4 and 4½ ft.	$14 00
Do., 5 ft.	15 00
Do. 5½ ft.	16 75

Steel bath quotations are net.

CEMENT NOW REPORTED IN MODERATE DEMAND

Toronto.

No change has been reported in cement prices and while it was previously thought that some lower prices may develop owing to the slight easing in freight rates, the opinion is now expressed that any such development has been postponed. The scarcity of coal and higher prices now obtaining for same are pointed out as increasing cement production costs, and while no great call for cement is looked for during the Fall season owing to the completion of present construction programs by that time, yet the market has remained fairly steady. Up to the present, therefore, the following quotations continue in effect:

CEMENT—

	Toronto.
Car load lots.	
Per barrel, delivered	$3.75
Less car lots.	
Per barrel, f.o.b. yard	4 40
Per barrel, delivered	4 60

Single bags, $1.15 each; 4 bags to barrel.
Extra charge of $1.50 per load on less than 24 bag lots.
Rebate of 20 cents for empty sacks.

REDUCTION IN PRICES ON CLOSET SEATS

Toronto.

A reduction of thirty cents in the prices on closet seats, has brought about a similar recession in quotations on low down combinations. The standard oak outfit remains at the level of $26, but all other similar items are lowered 30 cents.

Brisk trade is generally recorded in these products owing to the season building activities. Following are current average lists, including these revisions :

CLOSET COMBINATIONS, low down	**each**
Closet, standard outfit, oak	26 00
Do., with post hinge seat	26 20
Do., mahogany Vitro or Pussyfoot with mahogany post hinge seat and cover	28 45
Do., vitreous china, with oak post hinge seat and cover	28 45
Do., vitreous china, with mahogany post hinge seat and cover	28 70
Do., white Vitro or Pussyfoot, with oak post hinge seat and cover	28 45
Do., white Vitro or Pussyfoot with mahogany post hinge, seat and cover.	28 70
Do., enamelled iron tank with oak post hinge seat and cover	28 45
Do., enamelled iron tank with mahogany post hinge seat and cover	28 70
Additions or reductions to above:	
Add for reverse trap bowl	1 50
Add for syphon jet bowl	7 00
For ⅜ in. valve on supply pipe	1 50
Deduct for supply pipe	0 60
Deduct for floor flange and bolts	0 60
CLOSET BOWLS—	
Washdown bowl with spud	10 60
Reverse trap bowl, with spud	12 10
Syphon jet bowl, with spud	17 00
"Richelieu" bowl	10 50
CLOSET TANKS, low down, Oak, Vitro or Pussyfoot tank, with fittings, less seat	13 20
White Vitro or Pussyfoot tank with fittings, flush elbow and supply	15 65
Vitreous china tank with fittings, flush elbow and supply	18 00
Enamelled iron tank with fittings, flush elbow and supply	18 00
CLOSET SEATS—	
Oak post hinke seat and cover	3 85
Oak wood strip seat and cover	3
Mahogany finish post hinge seat and cvoer	4 05
Oak Richelieu seat and cover	3 50

SLIGHTLY BETTER TONE IN ASBESTOS MARKET

Toronto

The asbestos market is now reported a little firmer, there having developed a slight improvement in demand during the past few weeks. This is attributed to the fact that many buildings recently constructed are preparing for finished heating installations and others will soon reach the stage where these products are required. The discount levels recently announced continue in effect as follows:

ASBESTOS PRODUCTS—

Pipe Covering—	
Air cell, 4ply	60 per cent. off list.
Air cell, 3 ply	65 per cent. off list.
Air cell, 2 ply	67½% off standard list.
Boiler Covering	$1.50 per bag.
Asbestos Sheathing	$6.75 per 100 lbs.

(Continued on Page 34)

Simple Facts

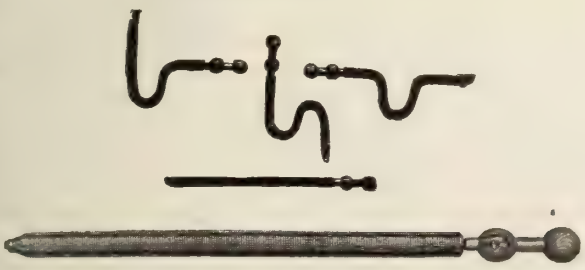
Just as sure as 2 and 2 make 4 there is a C. & H. specialty for every job. And by the same token C. & H. specialties are always just a little better and capable of more lasting service than the ordinary kind.

Take C. & H. Pipe Joint Cement for instance—made to a special formula—goes three times as far as Red Lead—does not bake or flake off—sets at once—joints easily separated after long service.

And "C. & H." Cone Top Tank Bulbs specially designed for Canadian pattern flush valves heavily vulcanized reinforced tops, bottoms soft and pliable, spuds will not pull out.

and 'C. & H.' Bending Spring

And C. & H. Bending Springs made of special flat steel wire do not kink the lead—a slight left turn and they are easily removed from the most intricate bend. Cost a little more but easily pay for themselves in time saved and their more lasting durability.



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The Everlasting Veneer Toilet Seat

Strong, Clean Hygienic

This reliable, dependable toilet seat is made of 7 and 9-ply, air-seasoned wood veneer, held together by our special wood cement. This cement is proof against heat, cold or dampness. The veneering is distributed according to the strain and wear required of the different parts. The Everlasting Seat will never crack, warp or split.

It is a splendid seat for use in cold, damp basements where closets must be installed. The Everlasting Toilet Seat will meet, and successfully resist these severe conditions of moisture, changing temperature, etc.

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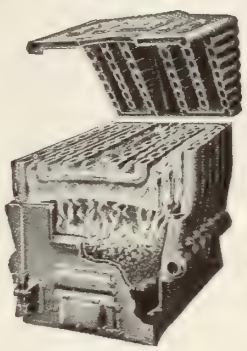

Long Fire Travel and Short Coal Bills

The less up chimney heat there is, the more boiler heat there is going to be.

"Up chimney" heat means coal waste.

In the illustration you will see that the Burnham Boiler fire travel is three times back and forth on **both sides** of the boiler.

This means that the bulk of the heat is out of the gases before they enter the flue.

Lord & Burnham Co. Limited of Canada

(Boiler Department)

Harbor Com. Bldg. Toronto.

Burnham Cosy Comfort Heat 88

Factory—St. Catharines, Ontario.

TORONTO MARKETS

(Continued from Page 32)

FIRMER MARKET IN TROUGH AND PIPING

Toronto

Trade in eavestrough, conductor pipe and elbows is still described as seasonably brisk, with a good amount of dwelling house construction promising a fair call for these products throughout the latter part of the season. Owing to the recent trend of the steel market and the higher prices on galvanized sheets, quotations on trough and piping are reported considerably firmer. Following are unchanged list prices and discounts:

TROUGH EAVE—

O. G. Square Bead and half round. Size in girth:	
8 in.	15 90
10 in.	17 70
12 in.	21 20
15 in.	28 80
18 in.	36 50

Less 70 and 10 per cent.

PIPE (CONDUCTOR)—

Plain, round or corrugated.	Per 100 ft. in 10 ft. lengths.
2 in., in 10 ft. lengths, list	18 40
3 in., in 10 ft. lengths, list	22 30
4 in., in 10 ft. lengths, list	29 60
5 in., in 10 ft. lengths, list	40 00
6 in., in 10 ft. lengths	49 00

Less 70-10 per cent.

ELBOWS (CONDUCTOR)—

2 inch, list	5 25
3 inch, list	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch list	29 00

Less 60 per cent.

FIRM MARKET TONE NOTED IN RADIATORS

Toronto.

Radiators and boilers are still reported with a good seasonal movement, quotations being steady. The marked upward trend throughout the steel industry, owing to the combined rail and coal difficulties, has developed an even firmer market tone on these products. Foundry iron and coal are rapidly advancing in price, and these factors tend to increase production costs. Following are prevailing quotations:

RADIATORS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60.

Discount on 2, 3, 4 and 5 column standard sizes, 70% for water and 60% for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 51% for water and 40% for steam.

Discounts on 1-column hospital size, water 33%; steam 34%.

Wall radiators—5 ft. $1.15; 6 ft. $1.10; 7 ft. $1.05; 9 ft. $1.05; 12 ft., $1.05. Discount 56%.

BOILERS—

Water:

Round 64% off list. Square 15%. off list.

Steam:

Round 28% off list; Square 15%. off list.

HIGHER QUOTATIONS ON COPPER AND BRASS

Toronto.

Due to the strength of the virgin metals and recent increases on primary markets, domestic prices on copper and brass products are advanced. This affects sheets, rods, and tubing in copper and brass, the base price being uniformly higher. For some time past the tendency has been towards a firmer basis, and manufacturers state that they are forced to announce the current change owing to recent upward developments in production costs. Current trade in all these goods is described as very fair, business generally having registered a marked improvement during recent weeks. Following are the revised quotations:

BRASS—	
Sheets base, per lb.	0 23
Rods, base, per lb.	0 20
Tubing, base, per lb.	0 28
COPPER—	
Rods, base, per lb.	0 28
Soft sheets, plain, 1 oz. and heavier, lb.	0 29
Do., plain tinned, 16 oz. and heavier, per lb.	0 36
Do., polished, and tinned, 16 oz. and heavier, lb.	0 41
Tubing	0 32

LOWER PRICES NOW PREVAIL ON PACKING

Toronto.

To those interested, packings have now been lowered in price and following are the new levels:

PACKINGS—

Fine Jute	0 15
Coasre Jute	0 11
Hemp	0 30
Square braided hemp	0 32
No. 1 Italian	0 35
No. 2 Italian	0 28

BRISK CALL FOR BRASS COMPRESSION GOODS

Toronto

The current demand for brass compression goods is stated to be fairly brisk, the seasonal activity in building circles being responsible for a good movement in valves and similar lines. Quotations have been on a much steadier basis during recent weeks, and no change is recorded, the following discounts remaining in effect locally:

VALVES—	Per cent.
Compression work, standard	45
Fuller work, standard	30
Bath cocks, compression	41
Do., Fuller	25
Flatway stop and wastecocks, stand'd.	54
Roundway stop and waste cocks std.	46
Brass steam cocks, standard ½" to 2"	50
Do., 2½" to 3"	43
Globe, angle and check valves, std.	25
Mueller globe, angle and check	25
Mueller composition disc steam valves	33
J.M.T. valves, screwed	20 10
J.M.T. gate valves, screwed	25 10
Jenkins gate or straightway, screwed	25 10
Jenkins globe, screwed	19 10
Radiator valves, standard	58
Do., removable disc	58
Emco, J. D., rad. valves, screwed	33
Emco swing check, ⅜" and ½"	40
Do., other sizes	33
Webster gate valves, screwed	33
Emco globe valves, std.	25
Emco globe valves, J.D., screwed	33
Basin Cocks—	
No. 0 and 1 Fuller pattern	30
Quick opening No. 3633	50
No. 3623, plain or index handle	34

PIPE FITTINGS ON STEADIER PRICE LEVEL

Toronto

The movement of pipe fitting continues in active proportion to the brisk seasonal call for building materials in general. As a consequence of the improvement recently noted in the products, prices have remained on a much steadier basis, and are unchanged at prevailing levels. A general note of firmness has now developed throughout practically all markets where basic materials include ores, foundry iron, coke, coal, and these primary markets are thus affected more or less directly by elements such as the coal strike and similar tendencies. Business is reported as distinctly better by both manufacturers and distributors. Following are current discounts:

PIPE FITTINGS—	Per cent.
Cast iron fittings	30
Plugs, cast iron	30
Do., solid	30
Do., countersunk	30
Bushings, malle.	32
Do., cast	32
Unions, ¼ in. to 2 in.	47
Do., ⅜ in., 2¼ to 4 in.	47
Flanged unions, std.	30
Flanged fittings	30
Dart unions, blk., ¼ to 2 in.	33½
Do., ⅜ in., 2¼ to 4 in.	23
Do., galvd., add to black	30
Nipples, blk., and galvd. ⅜ to 4 in. close and short	60
Do., 4½ in. and larger	50
Do., long, ⅜ in. to 4 in.	65
Do., 4½ in. and larger	55
Do., running thread	40
Couplings, 4 in. and under	30
Do., 4½ in. and larger	10

MALLEABLE FITTINGS—

New piece list, effective June 1, 1922. Discounts, 70 and 5 per cent.

NOMINAL PRICES ON HEAVY CORRUGATED

Toronto

Unsettlement in corrugated sheet price levels is reported from various market quarters, the shading of nominal quotations on the heavier gauges having again appeared. This condition prevailed during the early part of the season, but owing to the strength in the flat sheet markets and the higher prices on same, the general tone of corrugated naturally improved and steady prices have been in effect. Now that the call for corrugated sheets however, is slackening, keen competition has resulted in shading being reported in certain quarters. On the 24 gauge and heavier, an open market prevails, no prices being regularly quoted. The situation is firm on the lighter gauges, however, these being generally scarce with purchasing on a hand-to-mouth basis. Following is the prevailing nominal list:

CORRUGATED SHEETS—	Per 100 Sq. Ft.
No. 28 gauge	$6 50
No. 26 gauge	7 00
No. 26, U. S. gauge	8 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50

Less 10 per cent.

Lighter than 24 gauge and wider than 27 inches, 75c. per square extra.

STEADIER TREND IN COTTON WASTE PRICES

Toronto

Although there is reported to be considerable firmness in the market for cotton wastes, quotations are remaining at unchanged levels and distributors are describing the present tendency as steady. Some higher prices on the raw cotton markets have recently been reported, but it is stated that such developments are not always reflected in cotton waste circles, at least not immediately afterwards. That some future changes may develop should the strength in the primary quarters be maintained for any length of time was however, generally admitted. Trade at present is stated to be moderate and in

(Continued on Page 36)

AMONG a plumber's best friends are his tools, and, among his tools, many a plumber claims Williams' "Vulcan" Chain Pipe Vise as his best friend.

Ask for our "30 vs. 60 lbs." booklet. It will prove the value of "Vulcan" friendship.

J. H. WILLIAMS & CO.

LIMITED

"The Drop-Forging People"

Formerly Canadian Division of
THE WHITMAN & BARNES MFG. CO.
77 Thorold Road, ST. CATHARINES, Ontario.

Quality The Beaton and Cadwell Mfg. Co. New Britain, Conn. *Service*

"Gem" Automatic Air Valves Meet Popular Demands

In the construction of this automatic air valve the best brass obtainable is used. Also it is equipped with high grade carbon.

You will find the mechanism perfect, every valve being guaranteed.

Plumbers and Steamfitters Attention!

We manufacture many articles of interest. Ask for a catalogue of steam specialties.

All goods conform with custom regulations.

The Beaton & Cadwell Mfg. Co.

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WESTERN AGENTS:
A. E. Hinds & Co., Galt Building, Winnipeg, Man.
J. T. Yewdall, Vancouver, B.C.

Fig. 720

Here is a JENKINS VALVE that—

—opens with one-quarter pull of lever.

—stays open automatically.

—closes by slight pull of lever.

—is fitted with Jenkins renewable disc.

—stops water waste.

—saves time.

In short it fills the long felt want for a permanent and serviceable quick action valve in every service where a valve of this description is required.

Carefully designed and constructed, of course—all Jenkins Valves are.

Write for full particulars of this valve and for copy of Catalog No. 8. It shows the complete Jenkins line.

JENKINS BROS., LIMITED

103 St. Remi St., Montreal

TORONTO WINNIPEG VANCOUVER

European Branch:
6 Great Queen St., Kingsway,
London W.C. 2, Eng.

Jenkins Valves SINCE 1864

TORONTO MARKETS

(Continued from Page 34)

fair volume for this time of the year. Unchanged price levels follow:

COTTON WASTES—

Cream, polishing	0 18
White, XXX	0 18
XX	0 16
X	0 15
XC	0 14
XXX, extra	0 16
XX, grand	0 15
XLCR	0 14
X, Empire	0 13
X press	0 11½
Colored, No. 1	0 13
No. 17	0 12
No. 1A	0 11
No. 1B	0 10
Fancy	0 13½
Lion	0 12
Standard	0 10½
Popular	0 09
Keen	0 07½

Above lines subject to trade discount for quantity.

WROUGHT IRON PIPE IN FIRM POSITION

Toronto.

Wrought iron piping is still in a firm position and while the recent downward revision in domestic freight rates on certain basic materials may tend to offset contemplated price advances, yet the general situation reflects the growing strength of manufactured steel goods.

As a result of the rising costs of steel production, asking prices on many finished steel lines are more or less steadily advancing as the season progresses. Owing to the coal strike, production of certain lines has been somewhat restricted, more attention having been paid to heavy goods. This has given the market an appearance of exceptional snap. Quotations continue at list, No. 54:

WROUGHT PIPE

Price List No. 54. December 22, 1921.

Standard Buttweld Pipe S/C

Size	Steel Blk.	Steel Galv.	Gen. Wrot. Iron Blk.	Gen. Wrot. Iron Galv.
⅛ in.	$6 00	$ 8 00	$	$ ....
¼ in.	3 84	5 94	7 20	9 30
⅜ in.	3 84	5 94	7 20	9 30
½ in.	4 85	6 46	7 31	8 93
¾ in.	5 87	7 71	8 86	10 70
1 in.	8 16	11 05	12 58	15 30
1¼ in.	11 04	14 95	17 02	20 70
1½ in.	13 20	17 88	20 35	24 75
2 in.	17 76	24 05	27 38	33 30
2½ in.	28 08	38 03	.....	.....
3 in.	36 72	49 73	.....	.....
3½ in.	47 84	63 48	.....	.....
4 in.	56 68	75 21	.....	.....

Standard Lapweld Pipe S/C

Per 100 feet.

Size.	Steel Blk.	Steel Galv.	Gen. Wrot. Iron Blk.	Gen. Wrot. Iron Galv.
2 in.	$21 46	$27,38	$31,08	$37 00
2½ in.	31,50	40 05	46 80	56 16
3 in.	41 31	53 55	61 20	73 44
3½ in.	48 76	65 32	72 68	89 24
4 in.	57 77	77 39	86 11	105 73
4½ in.	66 04	86 36	1 04	1 24
5 in.	76 96	100 64	1 21	1 45
6 in.	1 00	1 31	1 57	1 88
7 in.	1 33	1 76	2 02	2 45
8L in.	1 40	1 85	2 13	2 58
8 in.	1 61	2 13	2 45	2 97
9 in.	1 97	2 59	2 97	3 59
10L in.	1 82	2 40	2 75	3 33
10 in.	2 35	3 09	3 54	4 28

STRONG UNDERTONE IN LEAD AND ZINC GOODS

Toronto

Lead and zinc products are reported quite firm in price, and since the upward revisions were announced two weeks ago, it is noted that the virgin metals have again advanced. Therefore, certain manufacturers and distributors generally look for additional higher levels in the near future on the finished goods, should the present strength be maintained in primary markets. Average prevailing quotations follow:

LEAD AND ZINC GOODS—

Lead pipe, list, per lb.	0 13
Lead, waste pipe, list, per lb.	0 14
Do., over 8 in., list, per lb.	0 15
Lead pipe is subject to a discount of 10 per cent.	
Lead traps and bends less, 15 per cent.	
Lead sheets, 4 to 6lbs., sq. ft. in rolls, lb.	0.09
Cut sheets, ½c to ¾c lb. extra and cut sheets to size, 1c lb. extra.	
Solder wire, per lb.	0 30
Do., commercial, lb.	0 22½
Do., strictly, lb.	0 21
Do., guaranteed, lb.	0 24
Do., wiping, lb.	0 21
Zinc sheets, per lb.	0 09 — 0 10

IMPROVEMENT EVIDENT IN RANGE BOILER TRADE

Toronto.

Seasonal improvement is recorded in the range boiler market, the current demand for these products having recently increased in volume. While trade is still described as spasmodic by some distributors, others observe that business is up to expectations and establishes a marked improvement over conditions in range boilers apparent earlier in the season. No variation in prices has been announced since the issuing of the revised list with discounts. It is noted, however, that the strength of the steel industry in general is now being reflected in quotations covering practically all finished steel products, although other galvanized lines such as wash boilers, sinks and miscellaneous wares were recently lowered in price.

RANGE BOILERS—

Size.	List Price
5-gallon	$13 50
12 to 15 gallon	14 00
18-gallon	15 00
25-gallon	16 50
30-gallon	17 50
35-gallon	20 50
40-gallon	22 75
52-gallon	38 00
66-gallon	60 75
82-gallon	74 00
100-gallon	103 00
120-gallon	117 00
144-gallon	164 00
168-gallon	187 00
192-gallon	210 00

Discounts, Standard weight, 50 per cent.
Extra heavy, 40 per cent.

TIN PLATE PRICES AT UNCHANGED LEVELS

Toronto.

Tin plate prices are reported steady at recently revised levels, with a brisk measure of operation now assured for mills by the current volume of bookings. It is noticeable that Welsh tin plate has recently been appearing on domestic markets in larger volume, and competition between Welsh and American producers has provided one of the features in this market during recent months. A recent announcement from Wales indicated that tin plate prices in that country were on the increase owing to higher production costs. Following are the average quotations:

	Per box
PLATES, CANADA—	
Ordinary, 52 sheets	4 75
Dull, 60 sheets	4 85
Blued and oiled, boxes 52's	5 00
Do., boxes 60's	5 10
PLATES, COKE TIN—	
IC, 20 x 28, 112 sheets	12 50
IX, 20 x 28, 112 sheets	16 00
IX, 20 x 28, 56 sheets	8 50
PLATES, CHARCOAL TIN—	
IX, 20 x 28, 112 sheets	10 00
IXX%, 20 x 28, 56 sheets	12 00
PLATES, TERNE—	
10 x 14 x 20, 112 sheets	11 50

FIRM UNDERTONE IN SOIL PIPE AND FITTINGS

Toronto.

The increased demand for soil pipe and fittings which has been experienced during recent weeks has brought the condition of current stocks to a point where supplies are described as "none too ample." A firm undertone in this market is noted, which is attributed to the recent higher costs of certain raw materials, but while an upward revision has been established in eastern markets, no price change has been announced locally. The prevailing levels are described as steady, and are as follows:

SOIL PIPE—

2 inch	40 per cent.
3 inch	40 per cent.
4 inch	40-5 per cent.
5 and 6 inch	40 per cent.
8 inch	net

FITTINGS—

2 to 6 inch	50|5 per cent.
8 inch	net

SCRAP MATERIALS DULL BUT PRICES UNCHANGED

Toronto.

The scrap metal market is still depressed. Consumers are refusing to purchase, apparently anticipating lower prices, and dealers are holding on to their stocks, hoping that the brisk trade of two or three weeks ago will return and enable them to get from under on recent purchases. Quotations are principally unchanged, but this is owing to the fact that dealers are refusing to make any concessions on their present holdings. Following are the usual averages of local dealers' current buying prices for fairly large quantities:

SCRAP MATERIALS—

Scrap Iron		
Gross Tons—		
Heavy melting steel (Hamilton)	$13 00	$14 00
Borings and turnings	6 00	7 00
Rerolling rails	12 00	13 00
Scrap pipe	5 00	6 00
No. 1 railroad wrought	10 25	11 25
Steel turnings (Hamilton)	9 75	10 25
Agricultural malleable	12 00	13 00
Railroad malleable	13 00	14 00
Net tons—		
No. 1 cast	18 00	19 00
Stove plate	15 00	16 00
Grate bars	14 00	15 00
Standard car wheels	15 00	16 00
Scrap Metals		
Heavy copper and wire	10 75	11 25
Light copper	9 25	9 75
No. 1 composition	9 00	9 50
No. 1 comp. turnings	7 25	7 50
Light brass	3 50	4 50
Heavy yellow brass	5 50	6 50
Heavy Lead	5 00	5 50
Tea lead	2 75	3 50
Scrap zinc	4 25	4 50
Scrap Rubber.		
Boots and shoes	2 25	2 50
Lumbermen's rubber boots	1 50	1 75
Auto tires	0 50	0 60
Solid tires	0 75	1 25

INGOT METALS NOW DEVELOP STRONGER TONE

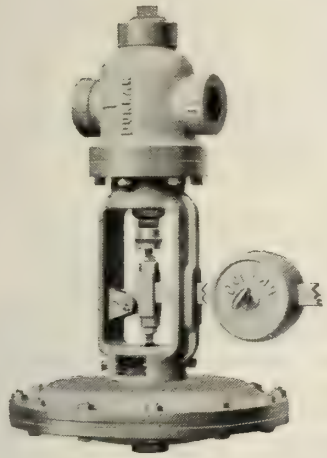
Toronto.

The ingot metal markets have generally developed a stronger tone, the surplus stocks of non-ferrous metals having been taken care of, and a little better demand consequently resulting. Spelter has again advanced in price, the local level having reached $7.75. Lead is also steadier and a little firmer at $7.25 while tin has been fluctuating with the net result being a slight increase to 36 cents.

(Continued on Page 38)

* No. 12

DUNHAM REDUCING VALVES



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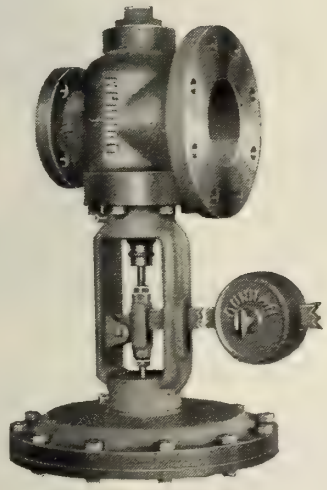


Type 310

*This is the twelfth of a series of talks on steam heating, appearing monthly in this magazine.

You will find them all very interesting and of help in your daily work.

After many years' experience in the sale of Reducing Pressure Valves, as well as years of experience in the manufacture of high grade Dunham Specialties, our organization is particularly well fitted to supply the needs of customers with Dunham Reducing Valves.

The line has been developed to meet the exacting needs of *"Reduced Pressure Service"* in steam, air, water or gas.

The lever and weights provide a wide range for low pressures. The valves are supplied with a double balanced inner valve and seats of special phosphor bronze, and are very sensitive in meeting sudden demands. They will reduce initial pressure to the desired low pressure in one step without chattering.

All orders should indicate whether for steam, air or other service, and the pressure required.

Every valve guaranteed to give satisfactory service.

Complete Data on Request

The DUNHAM HEATING SERVICE REG. TRADE-MARK

(Made in Canada)

C. A. DUNHAM CO., Limited TORONTO, ONT.

Halifax Vancouver Winnipeg Ottawa Montreal Calgary

London : 18 St. Thomas St. S. E. I.

TORONTO MARKETS
(Continued from Page 36)

COPPER.—Copper is again generally quiet. Consumers remain conservative in their commitments and requirements for the next few weeks are reported well covered. Reports from southern markets indicate that the future outlook is clouded by the traffic conjestion, and the shortage of fuel following the coal miners' strike. It is pointed out that no lasting improvement in fundamental conditions can be expected until the transportation and coal elements are settled, producers claim that the statistical position of copper remains strong and prices are being fairly well maintained. Local levels are unchanged at 17 cents.

TIN.—This metal has been fluctuating more or less, but the net result is an upward trend to prices on primary centres. Trading is however, dull, and the local market shows very little activity, but in spite of this quotations have advanced to the level of 36 cents.

LEAD.—This market is again reported steadier. Following the slackness in demand recently recorded, it was felt in some quarters that easier prices would prevail, but quotations have generally been maintained both on primary and domestic markets. Current business is described as satisfactory. Local price levels remain firm at $7.25.

SPELTER.—The upward trend of spelter continues and the general disposition of many sellers is now to withhold offerings in expectation of higher levels being reached. A brisk call for zinc in galvanizing purposes has been recorded. As the rise in spelter has been more or less rapid, however, reports from primary centres indicate it is reasonable to expect a little slackening. Local quotations have firmed up to the $7.75 level.

ANTIMONY.—This market continues to be ruled by fluctuations owing to the general demand remaining quiet. Prices show very little change and there is no variation noted in the outlook. The local price hovers between 6 and 7 cents.

ALUMINUM.—There is very little to be stated regarding aluminum, the market remaining quiet, with several reports describing the present conditions as dull. Domestic quotations are still around 20 to 21 cents.

Winnipeg Markets

WINNIPEG, July 29.—A trend towards firmer prices provides the feature in the plumbing and steamfitting market. With the brisk movement in building, materials needed are showing a steadier tone. Wrought pipe and pipe fittings are in fair demand and quotations are showing strength, the prevailing levels generally being well maintained.

GOOD DEMAND FOR PIPE FITTINGS; PRICES STEADY

Winnipeg.

There is a slight improvement in the demand for pipe fittings due to the increased activity in building circles. Quotations on these products remain unchanged.

PIPE FITTINGS—

Malleable, Class A	65% off.
Do., Class B and C	70% off.
Unions	45% off.
Do., Dart. ¼ to 2	25 and 10% off.
Dart. ¼, 2½ to 4	20% off.
Cast Iron Drainage	30 and 10% off.
Cast Iron Elbows, Tees, Crosses, Return Bends, Caps and Lock Nuts	25%
Reducers	30%
Bushings	30%
Plugs	25%
Wrought Couplings ⅛ to 4"	25%
Do., 4½" and larger	10%

WROUGHT NIPPLES—

Close and Short, up to 4"	50 and 10%
Do., 4½" and larger	40 and 10%
Long 4" and smaller	55 and 10%
Do., 4½" and larger	45 and 10%

ACTIVE PERIOD FOR TROUGH AND PIPE

Winnipeg.

Eaves trough, conductor pipes, elbows and sundry lines continue to show an improvement due to the activity in building. Quotations show no change.

WROUGHT PIPE STILL RETAINS STRONG TONE

Winnipeg.

There is no changes on wrought pipe although it is noticeable that prices are ruling firmer.

WROUGHT PIPE—

	Black.	Galvanized. Per 100 lbs.
⅛ inch	6 25	8 50
¼ inch	4 96	7 48
⅜ inch	5 10	7 63
½ inch	6 56	8 50
¾ inch	7 90	10 10
1 inch	11 27	14 53
1¼ inch	15 25	19 67
1½ inch	18 25	23 50
2 inch	24 55	31 65
2½ inch	38 80	50 00
3 inch	50 80	65 45
3½ inch	65 50	83 20
4 inch	77 60	98 50
4½ inch	88 85	113 00
5 inch	103 60	132 00
6 inch	134 40	171 25

STEADY TONE TO LEAD PIPE AND WASTE

Winnipeg.

There is a steady tone in the lead market. The demand is good due to building operations during the seasonable months.

LEAD AND ZINC—

Winnipeg.

Lead pipe, net	$12.51 per 100 lb.
Lead waste, net	$13.41 per 100 lb.
Lead traps and bends,	List less, 10 per cent.
Lead sheets, in rolls	11c. per lb.
Do., less rolls	11¾c. per lb.
Solder, ½ and ½case lots	26c. lb.
Do., less	27c. lb.
Do., wiping, cases	25c. lb.
Less than cases	25c. lb.
Zinc	13c. lb.

CLOSET COMBINATIONS IN FAIR DEMAND

Winnipeg.

Owing to requirements for building operations there is a fair demand for closet combinations with no change in prevailing prices.

FIRMER TONE IN COMPRESSION GOODS

Winnipeg.

The movement of the various lines of brass valves and bibbs continues to show an improvement with the progress made in construction work. The strength of copper has a strengthening tendency in the tone of the market, and with the improved demand for these goods higher prices may be expected.

VALVES—

Compression work, standard	40% & 50%
Fuller Work, Standard	30%
Bath cocks, compression	41%
Bath cocks, quick opening	41%
Basin cocks, compression	30%
Basin cocks, quick opening	45%
Brass steam cocks	35%

KNOW WHERE THE FLIES GO IN THE WINTER TIME

(Continued from Page 19)

The plumber is (or should be) an evangelist of cleanliness. He should be ever preaching the doctrine of sanitation.

Science has solved all the problems of rural sanitation, and while ten years ago there was some excuse for unsanitary conditions in rural communities and isolated dwellings, there is no excuse to-day.

Efficient and reliable and sanitary methods of disposing of domestic waste matter have now been established, and it is up to the plumber to drive this fact home.

Talk sanitation wherever you go. It is a live subject and from hearing you talk people will begin to think.

These are the facts!

Shoot!

PRICE GETTING GIVES HEAD-START TO TROUBLE

(Continued from Page 13)

practice that places honesty at a premium, that tempt men to be crooks. And who benefits; reduced to the last analysis, no one. If I didn't make enough last week to live on this week I live all the same, and the shortage has to come from somewhere. Did anyone ever figure they were getting full value at a one cent sale? How can one give away something commercially without receiving equal commercial return? Business that is obtained by the price cutting method is only retained by the same means. The cheap price of the plumber to the public to-day was started by the price cutting of the wholesaler and when it comes to making up the deficit then the hat will be passed again and the widow's mite will be acceptable. Go to it, there'll be another born in a minute. Most of us find that enough money is lost and work done too late to the many causes beyond our control, but why folks go out and encourage trouble by giving a head start is to deep to fathom. It is something like burning the candle at both ends.

USE

TESTED Soil Pipe

IT COSTS NO MORE AND YOU KNOW THE JOB IS RIGHT

Manufactured by

FORWELL FOUNDRY, LTD.

KITCHENER, ONT.

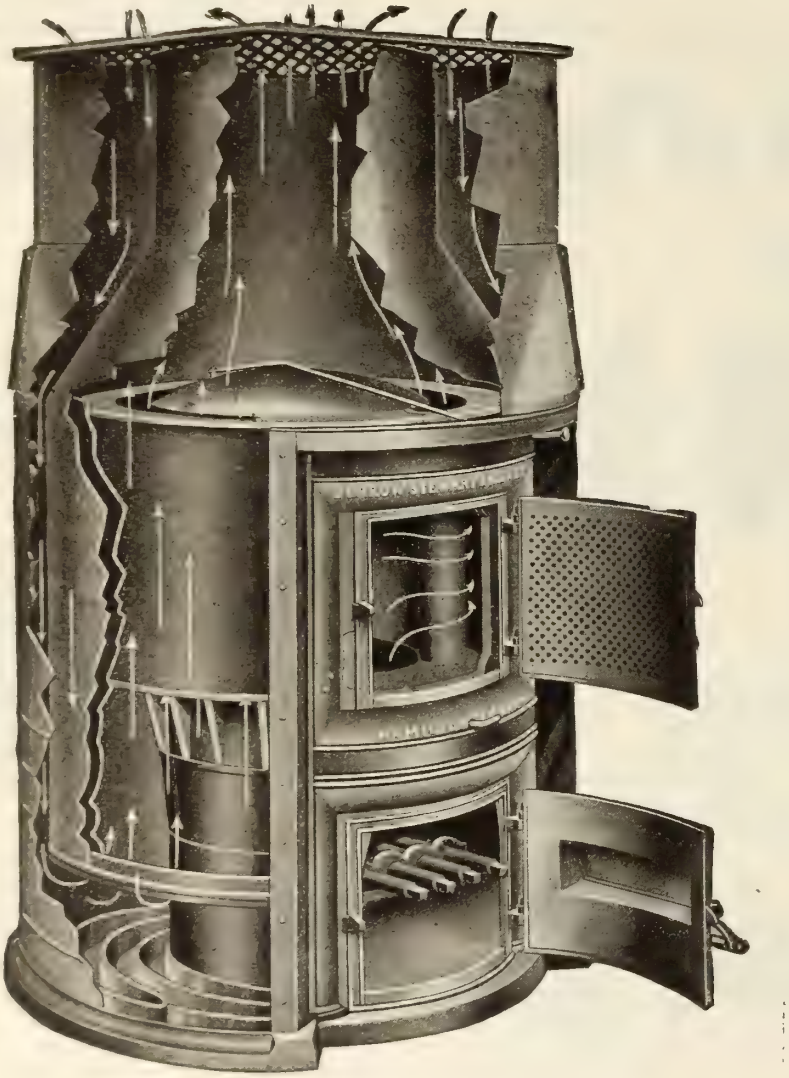
FITTINGS LIMITED

OSHAWA, CAN.

MANUFACTURERS OF

"DIAMOND" PIPE FITTINGS

A Striking Reason



JEWEL owners in different parts of the country actually claim that the JEWEL saves from 1-6 to ¼ on fuel bills. Think of it!

What more striking reason could be given for the JEWEL'S paramount superiority?

Every JEWEL installation means a good profit in cash and that additional profit that comes from increased sales resulting in having a number of enthusiastic owners in your district.

Write for the JEWEL proposition to-day. It means extra profits.

Burrow, Stewart & Milne Co. Ltd.

HAMILTON - ONTARIO

Branches : Toronto, Winnipeg, Montreal

We Offer you Special Quality in
Kerr Hot Water Radiator Valves

No. 39

They set a new standard for real efficiency, finished superior to most valves of this class and equal to any on the market.

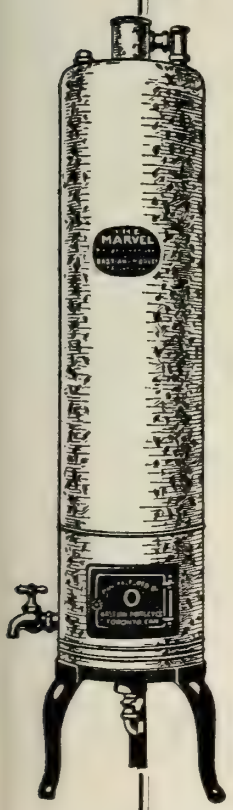
The bodies are so designed as to give the fullest possible area and all openings are of the full diameter of the pipe.

All valves are tapped right hand unless otherwise specified on order.

Made with lockshield if desired. Keys extra. Every valve tested.

The Kerr Engine Co., Limited

Valve Manufacturers - Walkerville, Canada



Sell Boiler and Heater Combined

Sell a job you can install anywhere in quick time—a job that gives you a quick, clean, generous profit—and no complaints. The

MARVEL
Gas Water Heater

is heater and storage tank in one compact unit. No lime or sediment-holding coils. No odors and no noise. Economical to use.

Comes complete, ready to install. Well advertised. Sold only through or by plumbers. Costs no more than old-style gas water heaters. Descriptive literature will convince you it's worth much more.

Write now for full information.

Bastian-Morley Limited
Makers of Royal "Automatic" Gas Water Heaters.
195 Victoria St., Toronto

New Prices on

TORONTO Gendron CANADA

Bathroom Fittings and Hardware Specialties

We are glad to be able to announce to the trade a general reduction in prices of our Bathroom Fittings and Hardware Specialties Lines.

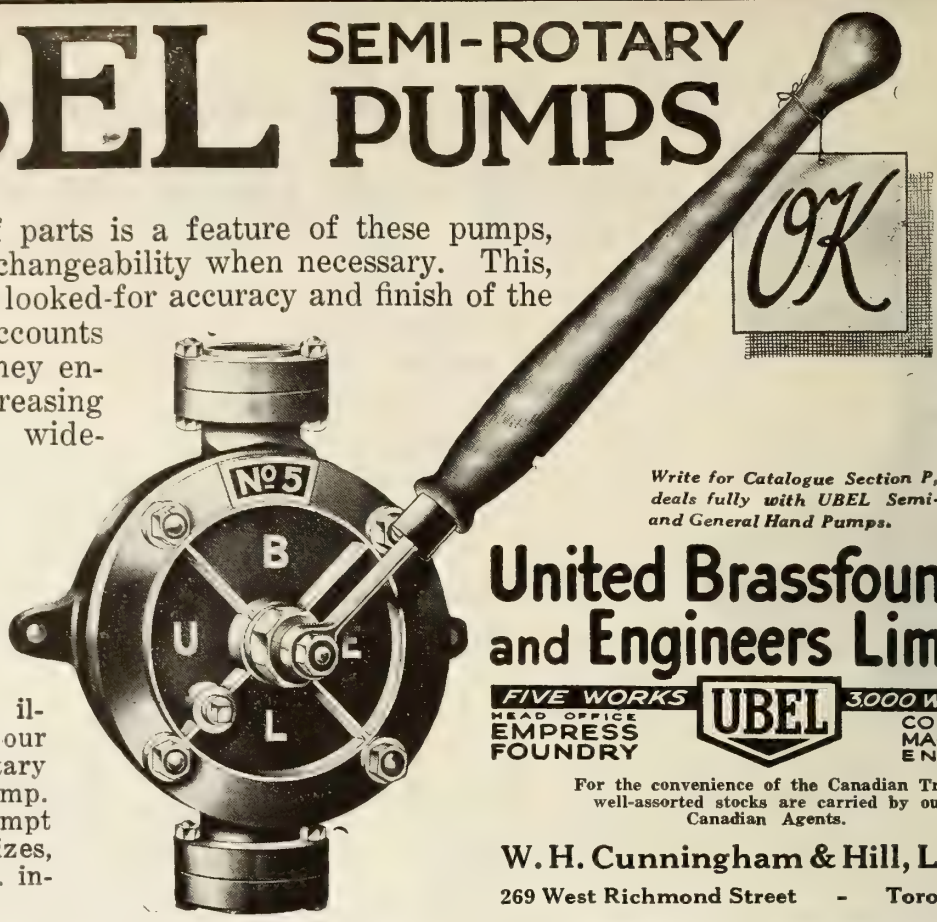
The Trying Times of High Prices in these lines is over!

Gendron prices are down to rock-bottom. Write to-day and get our new price lists.

The Gendron Mfg. Co., Limited
Duchess Street - Toronto

UBEL SEMI-ROTARY PUMPS

Standardization of parts is a feature of these pumps, guaranteeing interchangeability when necessary. This, combined with the looked-for accuracy and finish of the UBEL product, accounts for the fact that they enjoy an ever-increasing popularity and widespread demand.



The accompanying illustration shows our Fig. P 1 Semi-Rotary Double-Acting Pump. We can give prompt shipment of all sizes, from ½ in. to 3 in. inclusive.

Write for Catalogue Section P, which deals fully with UBEL Semi-Rotary and General Hand Pumps.

United Brassfounders and Engineers Limited

FIVE WORKS — UBEL — 3,000 WORKERS

HEAD OFFICE EMPRESS FOUNDRY

CORNBROOK MANCHESTER ENGLAND

For the convenience of the Canadian Trade well-assorted stocks are carried by our Canadian Agents.

W. H. Cunningham & Hill, Limited

269 West Richmond Street - Toronto, Ont.

Why are the

VULCAN

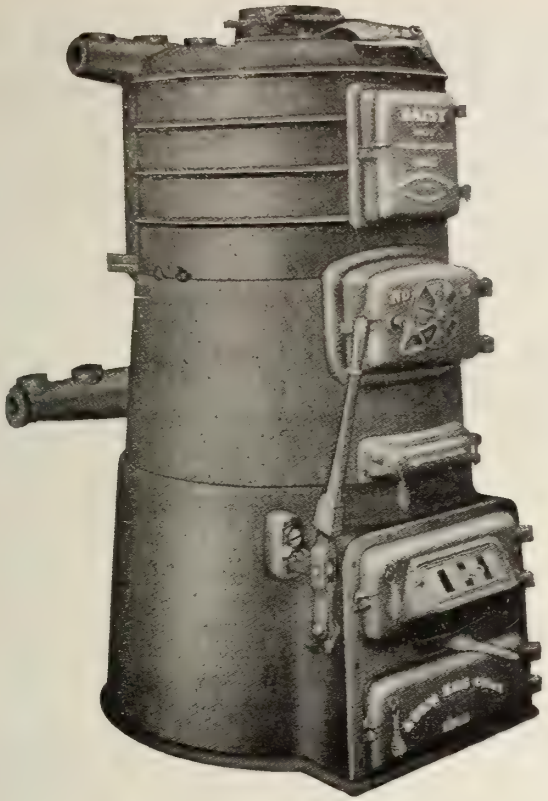
Pure Air Furnaces Superior in Radiation?

because they give off a more satisfactory amount of heat in proportion than any other furnace, on account of the greater total area of radiation surface.

Easy to operate
Profitable to install
Strongly constructed of heavy metal

THE VULCAN CO., LIMITED

London - - Canada



What HEATING SYSTEM are you supplying for the new home?

Many dwellings built during the summer months are ready for heating systems, and many more will require a system at a little later date.

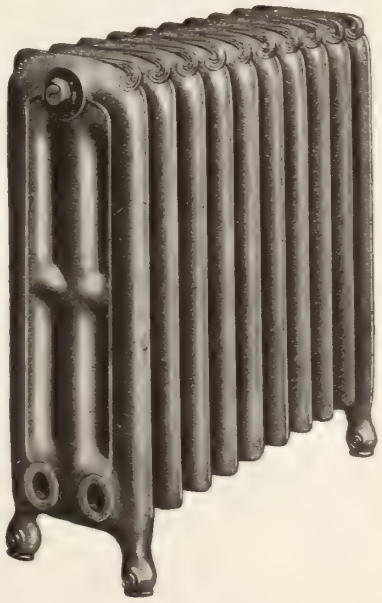
In commending a hot water system you are not "taking a chance" with satisfying the owner.

In specifying a "Daisy" boiler and "Viking" radiators you are further assured of a happy and satisfied customer.

You are also assured of a good margin of profit for yourself.

Their reputation is sufficient to increase your own established and steadily increasing business.

Send us your specifications.



WARDEN KING LIMITED

MONTREAL

Branch Office--*136 Simcoe St., Toronto*

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C. A. Dunham, Co., Ltd., Toronto.
United Brassfounders & Engineers, Ltd., Manchester, Eng.

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Canada Metal Co., Ltd., Toronto.

AIR VALVES
Beaton & Caldwell Mfg. Co., New Britain, Conn.
W. H. Cunningham & Hill, Ltd., Toronto.
C. A. Dunham Co, Ltd, Toronto.
Empire Mfg Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont
J. H. Williams Co., Brooklyn, New York.
United Brassfounders & Engineers, Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.

BATHROOM FITTINGS
Canada Metal Co., Ltd., Toronto.
Gendron Mfg. Co., Ltd., Toronto.

BENDING SPRINGS
W. H. Cunningham & Hill, Ltd., Toronto.

BOILERS, STEAM OR HOT WATER
Gurney Foundry Co., Limited, Toronto.
Lord & Burnham Co., Ltd., Toronto.
Spencer Heater Co., Ltd., Toronto, Ont.
Warden King, Ltd., Montreal.

BOILER FEED REGULATORS
Empire Mfg. Co., London and Toronto.
C. A. Dunham Co., Ltd., Toronto.

BOILER STANDS
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BOLTS, EYE
J. H. Williams & Co., Brooklyn, N. Y.

BOLTS AND NUTS
Fittings Limited, Oshawa.

BRASS GOODS, VALVES, ETC.
Canadian Brass Co., Ltd., Galt, Ont.
Canada Metal Co., Ltd., Toronto.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
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Galt Brass Co., Limited, Galt.
Kerr Engine Co., Ltd., Walkerville.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd, Sarnia, Ont
Standard Sanitary Mfg Co., Ltd., Toronto, Hamilton.
United Brassfounders, & Engineers, Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.
W. H. Cunningham & Hill, Ltd., Toronto.

BRASS PIPE AND TUBE
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
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United Brassfounders & Engineers Ltd., Manchester, Eng.
Wolverine, Ltd., Toronto, Ont.

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Fittings, Limited, Oshawa.

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Galt Brass Co., Limited, Galt.
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Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

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J. H. Williams & Co., Brooklyn, N. Y.

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Fittings, Limited, Oshawa.
J. H. Williams & Co., Brooklyn, N. Y.

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W. H. Cunningham & Hill, Ltd., Toronto.

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Canada Metal Co., Ltd., Toronto.
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Kerr Engine Co., Walkerville.
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Canada Metal Co., Ltd., Toronto.
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Standard Sanitary Mfg. Co., Ltd., Toronto.

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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

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FITTINGS
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Empire Mfg. Co., Ltd., London and Toronto.
Fittings Limited, Oshawa.
James Morrison Brass Mfg. Co., Toronto.
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Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
United Brassfounders & Engineers, Ltd., Manchester, Eng.
Warden King, Ltd., Montreal.

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Galt Brass Co, Ltd., Galt.
H Mueller Mfg. Co., Ltd., Sarnia, Ont
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Wolverine Ltd., Toronto, Ont.

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Burrow, Stewart & Milne, Hamilton.
Hall-Zryd, Hespeler, Ont.
Vulcan Co., London, Ont.

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Empire Mfg. Co., Ltd., London and Toronto.

GAS WATER HEATERS
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James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont
Standard Sanitary Mfg Co., Ltd., Toronto. Hamilton.
W. H. Cunningham & Hill, Ltd., Toronto.

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Fittings, Limited, Oshawa.

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HEATING APPARATUS
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Lord & Burnham Co., Ltd., Toronto.
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Fittings, Limited, Oshawa.

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W. H. Cunningham & Hill, Ltd., Toronto.

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The Canada Metal Co., Ltd., Toronto.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

LEAD
Canada Metal Co., Ltd,. Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

MACHINISTS' TOOLS
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Fittings Limited, Oshawa.

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Fittings, Limited, Oshawa.

MIXING VALVES
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Empire Mfg. Co., Ltd., London and Toronto.
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Standard Sanitary Mfg. Co., Ltd., Toronto. Hamilton.
Port Hope Sanitary Mfg. Co., Ltd., Port Hope.

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Empire Mfg. Co., Ltd., London and Toronto.
Wolverine Ltd., Toronto, Ont.
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PIPE AND RADIATOR HANGERS
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W. H. Cunningham & Hill, Ltd., Toronto.
Healy-Ruff Company, Minneapolis, Minn.

PIPE, BLACK AND GALVANIZED
Canada Metal Co., Ltd., Toronto.
Canadian Tube and Iron Co., Ltd., Montreal.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto. Hamilton.

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Chamberlain Dissolvo Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Wolverine, Ltd., Toronto, Ont.
W. H. Cunningham & Hill, Ltd., Toronto.

PIPE JOINT COMPOUNDS
Wolverine, Ltd., Toronto, Ont.
Empire Mfg. Co., Ltd., London and Toronto.
W. H. Cunningham & Hill, Ltd., Toronto.

PIPE, SOIL AND FITTINGS
Anthes Foundry Co., Toronto and Winnipeg.
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings, Limited, Oshawa.
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Toronto Hardware Mfg. Co., Toronto.
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PORCELAIN WARE
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd, Sarnia, Ont

PUMPS
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The Westco Pumps Limited, Toronto.
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PUMPING SYSTEMS, AUTOMATIC
Canada Metal Co., Ltd., Toronto.
The Westco Pumps, Limited, Toronto.
Beaton & Cadwell Mfg. Co., New Britain, Conn.

RADIATORS
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Lord & Burnham Co., Ltd., Toronto.
Warden King Ltd., Montreal.

RADIATOR HANGERS
Healy Ruff Company.

RADIATOR NIPPLES
Fittings Limited, Oshawa.

RADIATOR TRAPS (STEAM)
C. A. Dunham Co., Ltd., Toronto.
H. Mueller Mfg. Co., Ltd, Sarnia, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.

RIVETS
Fittings, Limited, Oshawa.

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Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.
The Canadian John Wood Mfg. Co., Toronto.
Toronto Hardware Mfg. Co., Toronto.

REDUCING PRESSURE VALVES
C. A. Dunham Co., Ltd., Toronto.
H. Mueller Mfg. Co, Ltd, Sarnia, Ont.
United Brassfounders & Engineers, Ltd., Manchester, Eng.

ROOF FLANGES AND FLASHINGS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

SEPTIC TANK VALVES AND SYPHONS
Anthes Foundry Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
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Give a Noiseless Perfect Circulation without the use of Air Vents or Traps on Radiators.

No Vacuum Pumps are used, consequently it saves Fuel and costs for Maintenance.

Farrfhern Heating will make the work of Contractors more profitable.

It is for buildings of every type and size.

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Director of Sales
210 Galley Ave. - TORONTO

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THIS DEVICE IS INVALUABLE TO ANY SANITARY ENGINEER WHO TAKES PRIDE IN TURNING OUT SUCCESSFUL WORK

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D. A. BETHUNE, LTD.
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Compartments for Lavatories and Showers

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LONDON CANADA

Use It Regularly!

Just as you need vigor and zest in connection with your work, so do you need

HERCULES DRAIN PIPE SOLVENT

It contains all the necessary ingredients that get right to work and quickly clears all stoppages.

Stop the daily worries when on the job and use

HERCULES DRAIN PIPE SOLVENT

Send for a sample can at once.

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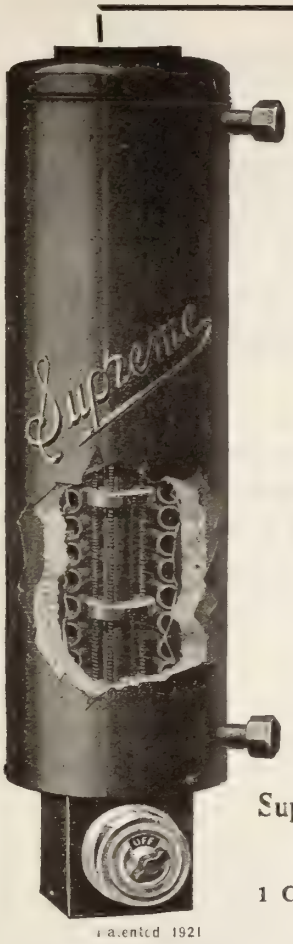

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Water Heater

(electric or gas)

"Just a Real Good Heater"

Recognized by satisfied users as the most economical and efficient heater on the market.

If you are not selling the Supreme write for our proposition to-day. It's a profitable one.

Manufactured by

Supreme Water Heater Mfg. Company

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Quiet, Reliable, Simple, Durable,---

Dale Ball Cocks with Porcelain, indestructible seats, **"Kant Leak" 10 oz. Copper Floats, Wolverine Flush Valves** and **Sure Seat Tank Balls** make an absolutely reliable combination.

They spell **"Satisfied Customers"** and **"Satisfactory Profits."**

Your metal and rubber lines should bear the name Wolverine. Absolutely guaranteed and time tested.

Mail or telephone your requirements.

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New Tools for Old—

Within 24 hours from the time your old tools are sent to us, they are ready to be shipped back to you, fully repaired and ready to be put back on the payroll. That's the kind of service we give. No matter whether you are located in Toronto, Halifax or Vancouver, you can depend upon this quick efficient service that has made many friends for us from coast to coast. Send along those broken tools to-day.

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Repairmen to the Canadian Plumber and Steamfitter

WROUGHT PIPE

Suitable for the approaching period of building activity, road construction, etc. This is a line of great importance in making successful, profitable contracts. Our C. T. Brand of Wrought Pipe has been

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by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes ⅛-in. to 4-in. Black or Galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your Jobber for C. T. Brand Wrought Pipe

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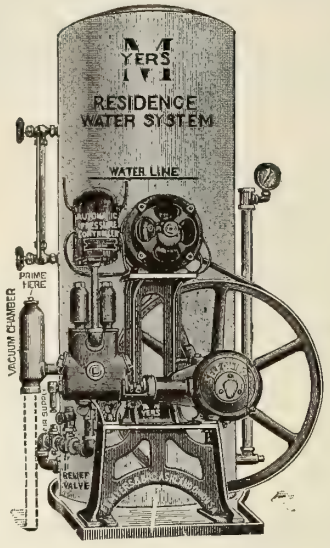
Operating Canadian Tube and Iron Co., Limited
Works at Lachine Canal, Montreal

PNEUMATIC WATER SUPPLY SYSTEM

Gives country residents all the advantages of a city water system without the excessive cost

The wide-awake dealer will make big profits out of this system among customers who now have difficulty with their water supply. It is so simple to operate and costs practically nothing for upkeep.

The outfit consists of an air-tight steel tank which can be placed in the basement, and a "Myers" famous guaranteed pump (hand or power), suitable for pumping air or water, together with pipes and fittings. Any plumber or gas fitter can easily install it. Every outfit guaranteed to do the work for which it is designed. For small or large dwellings.



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The STEEL TROUGH & MACHINE CO., Ltd.

Tweed, Ont., Canada

Tapped Closet Bend

Easier to attach
More permanent
Cost less

Bull Dog Brand Seats & Tanks

Strongly made of superior materials, and thoroughly proof against warping, opening, etc. Investigate the Bull Dog line of products.

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Our new HOME STUDY course in BUSINESS ADMINISTRATION is now ready for the trade. It teaches you the most modern methods of Business.
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OAK FINISH TYPE S.

The Attractive Design of

'Pussyfoot' Closet Tanks

Adds Finish to Your Bath Room

OUR NEW VALVE

Patent Applied

Gives additional satisfaction
with its

QUICK ACTION
SILENT OPERATION
EASE OF ADJUSTMENT

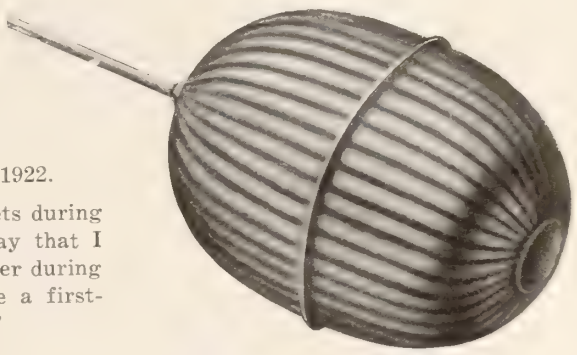
Every valve is tested under 150 lbs. pressure before it leaves our factory.

Simple—
Silent—
Serviceable

Read what ONE of our satisfied customers says :

Windsor, Ont.,
July 18th, 1922.

"I have used a great many Pussyfoot Closets during the past 18 months and am pleased to say that I have had no trouble with these closets, either during or after installation. I found them to be a first-class and well-finished Canadian product."



Order Pussyfoot from your jobber every time

THE CANADA METAL COMPANY
LIMITED

Montreal Hamilton Toronto Winnipeg Vancouver

The New VITRO has Taken Hold

People are constantly demanding something new. That's a healthy sign of progress. The Vitro No Trouble Tank being as perfect as fourteen years' specialized manufacturing experience could make it, could not be improved upon as far as the quality of the material and workmanship were concerned. We couldn't improve these so we improved the shape so that the NEW DESIGN VitrO has all the features of its predecessors plus a 1922 design.

As usual VitrO is right up to the minute with all competition far behind.

To display the New Design VitrO is to sell it. Your jobber has them.

Galt Brass Company, Limited

GALT - CANADA

Every Tank Tested

VITRO NO TROUBLE TANK

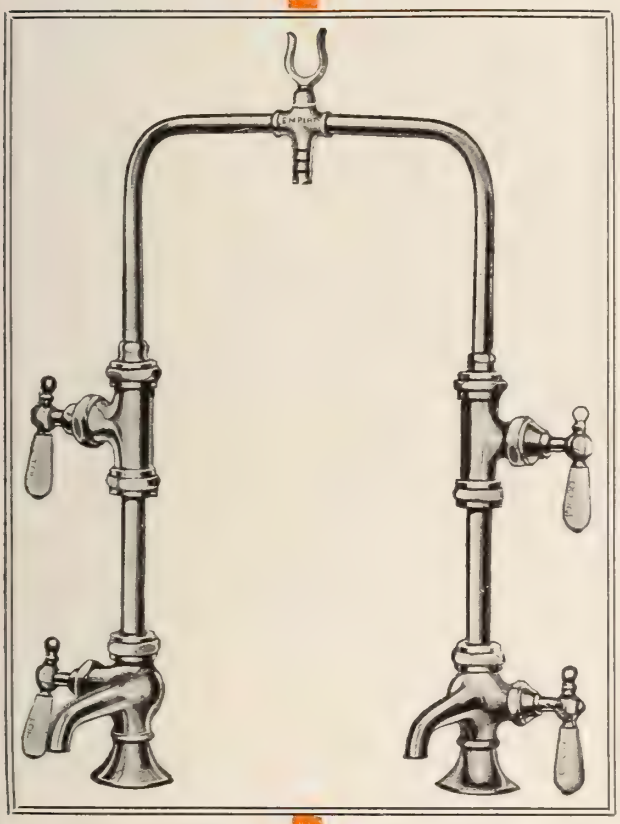
Every Part Perfect

Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XVI. PUBLICATION OFFICE, TORONTO, AUGUST 15, 1922 No. 16

The Modern Fixture for the Barber's Shop



Strict sanitation is demanded by a discriminating public nowadays. The old-fashioned stove and hot water kettle in the barber shop is being supplanted by the up-to-date sanitary fixture shown in the illustration.

This "Emco" quick Pression Basin and Shampoo Cock is designed to fit any size lavatory and water can be run from the shampoo outlet or to the basin, without turning on two or more taps.

Made to operate on the quick pression principle, beautifully finished and exceptionally durable.

All good jobbers handle our Sanitary fixtures.

"We cover all the 'Emco' Line —With a Finish that is Fine."

"EMCO"

Quick Pression

Shampoo Cock

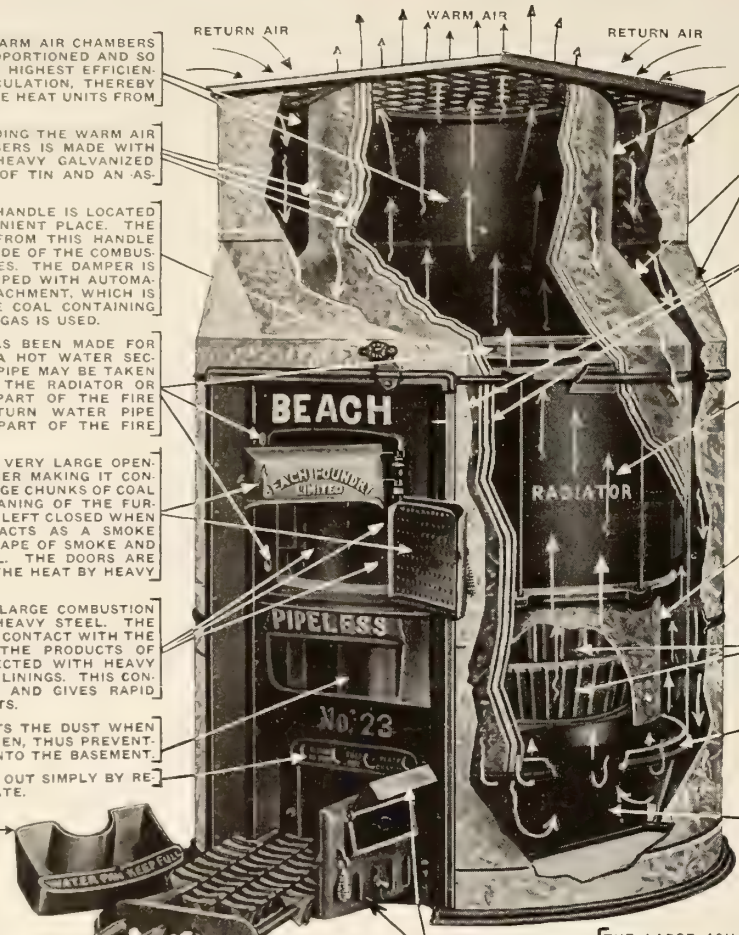
Empire Brass Mfg. Co. Ltd.

London and Toronto, Canada

Look for our exhibit at the Toronto Exhibition and the Western Fair

Beach Pipe and Pipeless Furnaces

On Display at Toronto and Ottawa Exhibitions



THE RETURN AIR AND WARM AIR CHAMBERS ARE SCIENTIFICALLY PROPORTIONED AND SO CONSTRUCTED THAT THE HIGHEST EFFICIENCY IS OBTAINED IN CIRCULATION, THEREBY OBTAINING ALL AVAILABLE HEAT UNITS FROM THE FUEL CONSUMED.

THE INNER CASING DIVIDING THE WARM AIR AND RETURN AIR CHAMBERS IS MADE WITH AN OUTER LAYER OF HEAVY GALVANIZED IRON, AN INNER LAYER OF TIN AND AN ASBESTOS INTER-LINING.

DIRECT DRAFT DAMPER HANDLE IS LOCATED IN A HANDY AND CONVENIENT PLACE. THE DAMPER ROD LEADING FROM THIS HANDLE TO THE DAMPER IS OUTSIDE OF THE COMBUSTION CHAMBER AND FLUES. THE DAMPER IS OF FULL SIZE AND EQUIPPED WITH AUTOMATIC GAS EXPLOSION ATTACHMENT, WHICH IS VERY ESSENTIAL WHERE COAL CONTAINING A HIGH PERCENTAGE OF GAS IS USED.

SUITABLE PROVISION HAS BEEN MADE FOR THE INSTALLATION OF A HOT WATER SECTION. THE HOT WATER PIPE MAY BE TAKEN THROUGH THE TOP OF THE RADIATOR OR THROUGH THE UPPER PART OF THE FIRE DOOR FRAME. THE RETURN WATER PIPE THROUGH THE LOWER PART OF THE FIRE DOOR FRAME.

THE TWO DOORS GIVE A VERY LARGE OPENING TO THE FIRE CHAMBER MAKING IT CONVENIENT FOR ADDING LARGE CHUNKS OF COAL OR WOOD AND THE CLEANING OF THE FURNACE. THE TOP DOOR, IF LEFT CLOSED WHEN FIRING THE FURNACE, ACTS AS A SMOKE PLATE AGAINST THE ESCAPE OF SMOKE AND GAS WHEN ADDING FUEL. THE DOORS ARE ALSO PROTECTED FROM THE HEAT BY HEAVY METAL LININGS.

THE HOUSING FOR THE LARGE COMBUSTION CHAMBER IS MADE OF HEAVY STEEL. THE PARTS COMING IN DIRECT CONTACT WITH THE EXTREME HEAT FROM THE PRODUCTS OF COMBUSTION ARE PROTECTED WITH HEAVY CAST SHIELDS AND CAST LININGS. THIS CONSTRUCTION IS DURABLE AND GIVES RAPID RADIATION OF HEAT UNITS.

THIS DUST FLUE ARRESTS THE DUST WHEN GRATES ARE BEING SHAKEN, THUS PREVENTING IT FROM ESCAPING INTO THE BASEMENT.

THE GRATES ARE TAKEN OUT SIMPLY BY REMOVING THIS GRATE PLATE.

LARGE WATER PAN IS CONVENIENTLY LOCATED IN THE OPENING UNDER THE FIRE DOOR IN FRONT OF THE DUST FLUE AT A POINT WHERE THE HEATED CASTINGS EVAPORATE THE WATER RAPIDLY. THE HUMIDITY FROM THIS PAN GIVES MOIST WARM AIR CONDUCIVE TO GOOD HEALTH.

THE GRATE BARS ARE HEAVY, DURABLE AND OPERATE INDEPENDENTLY OF EACH OTHER, OR MAY BE OPERATED IN PAIRS BY THE ADDING OF GRATE BAR COGS. THEY ARE ALSO EASILY REMOVED BY TAKING OFF THE GRATE PLATE.

THE LARGE ASH DOOR IS EQUIPPED WITH A DROP DRAFT DOOR PROVIDED WITH CHAIN AND PULLEYS FOR CONTROLLING THE FIRE FROM THE FLOOR ABOVE. THE ASH DOOR IS ALSO PROVIDED WITH SLIDE DAMPER.

THE HOUSINGS FOR THE AIR CHAMBERS CAN BE ADJUSTED TO ANY BASEMENT HEIGHT.

ABSENCE OF ANGLES AND SHARP TURNS REDUCES FRICTION AND PREVENTS THE POCKETING OF AIR, THEREBY GIVING AN EASY AND FREE CIRCULATION OF AIR INTO AND OUT OF THE FURNACE.

SPECIAL LUGS WITH LONG THREADED SCREWS ARE ATTACHED TO THE INNER AND OUTER CASINGS AND SO ARRANGED THAT THE FURNACE CAN BE ASSEMBLED WITH EASE AND A GOOD TIGHT JOINT OBTAINED.

RADIATOR IS OF THE HORSE SHOE DESIGN AND OF LARGE SIZE, THE INNER PART OF WHICH FORMS THE COMBUSTION CHAMBER. IT IS OF HEAVY WEIGHT AND STRONGLY CONSTRUCTED, ALL RODS AND BOLTS BEING OUTSIDE OF COMBUSTION CHAMBER AND FLUES. THE STEEL HOUSING OF THE RADIATOR IS DRAWN TIGHTLY AGAINST HIGH CAST METAL RIBS, THEREBY MAKING A PERFECTLY GAS TIGHT JOINT.

SHIELD PREVENTING THE DIRECT HEAT OF THE FIRE POT FROM COMING IN CONTACT WITH THE LOWER PART OF THE INNER CASING PREVENTS THE FORMATION OF EDDIES OF HOT AIR AND THUS INCREASES THE FREE AND EASY FLOW OF THE HEATED AIR IN THE WARM AIR CHAMBER.

HEAVILY RIBBED TWO PART FIRE POT FITTING TOGETHER WITH DEEP CUP JOINTS MAKES THEM DURABLE AND PREVENTS THE ESCAPE OF DUST OR GAS. GUARANTEED.

THE WARM CHAMBER CASING BEGINS AT THE PROPER HEIGHT FROM THE BASE AND PERMITS THE RETURN AIR AT ONCE TO COME IN CONTACT WITH THE HOT CASTINGS.

VERY LARGE ASH PIT, WHICH MAY BE CLEANED EASILY ON ACCOUNT OF THE SQUARE ENDS.

MORE HEAT - LESS TROUBLE

That is what you are guaranteeing your customers when you sell them one of the famous Beach Heat Makers. You have the double satisfaction of knowing that your customer is well satisfied and that you have made a handsome profit.

Business of this kind is nice, clean and satisfying and it is the kind that the dealer is always sure of when the goods handled are the famous Beach Maple Leaf Brand.

Get in line with this gratifying business. If you are handling Maple Leaf—Push them to the limit. If you are not handling Maple Leaf—decide now to do so.

Write us for terms and full particulars.

Manufactured Exclusively by

BEACH FOUNDRY Limited - OTTAWA, CANADA

Branches at : WINNIPEG VANCOUVER

TRADE B.O.T. MARK

Syphon Closets

CANADIAN BRASS COMPANY LIMITED

GALT - TORONTO

MAKERS OF DEPENDABLE PLUMBERS' SUPPLIES

Here's

This Advertisement Appears in August 15th "MacLeans"

The Idea—

Thousands of dollars are being spent yearly in an effort to instil in the public mind, a stronger desire for modern plumbing fixtures. Advertisements such as the one shown on the opposite page are appearing regularly in National Canadian periodicals circulating from coast to coast.

Link up your store with this great forward movement by making the most of your available window space. Let people see in attractive reality the fixtures that we are daily showing them in print through our advertising.

"Standardize on Standard"

Let our Toronto Showrooms, 59 Richmond St. East, be your headquarters during your visit to the Exhibition.

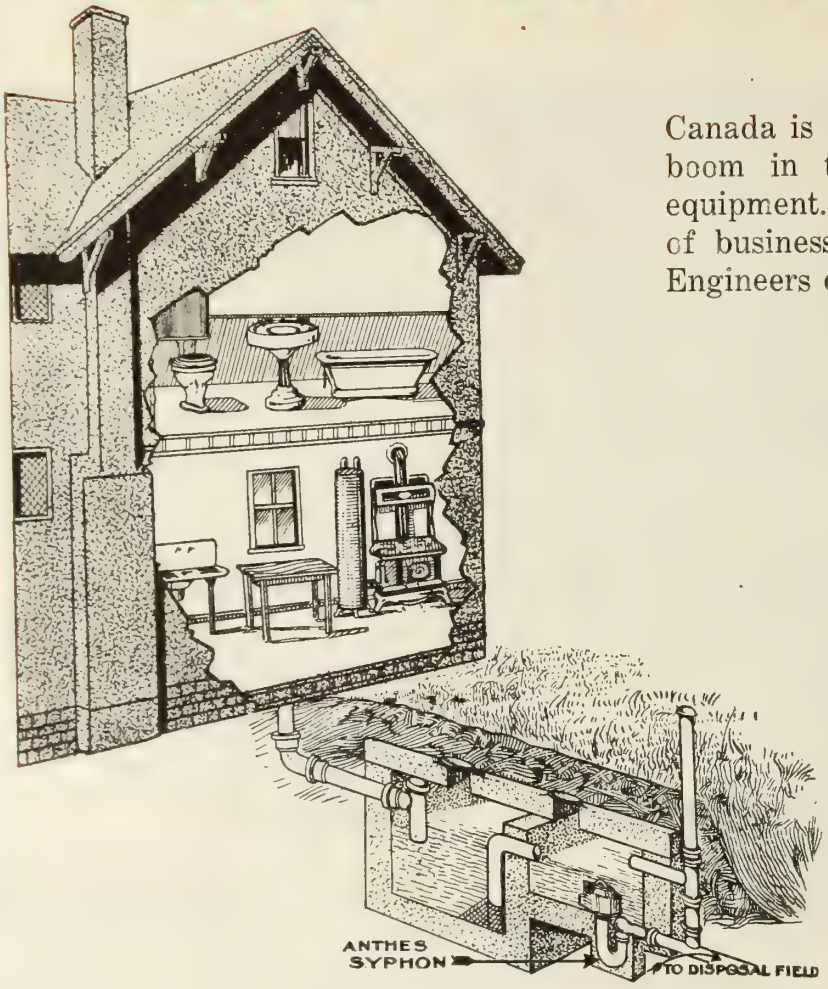
Standard Sanitary Mfg. Co.
Limited

General Office and Factory: Royce and Lansdowne Aves., Toronto, Ont.

Toronto Store: 55-59 Richmond Street East
Winnipeg Showrooms: 145 Market Street East
Montreal: New Birks Bldg.
Calgary: 354 11th Ave. West
Hamilton Store: 26-28 Jackson Street West
Vancouver: 560 Cambie Street

"MADE IN CANADA"

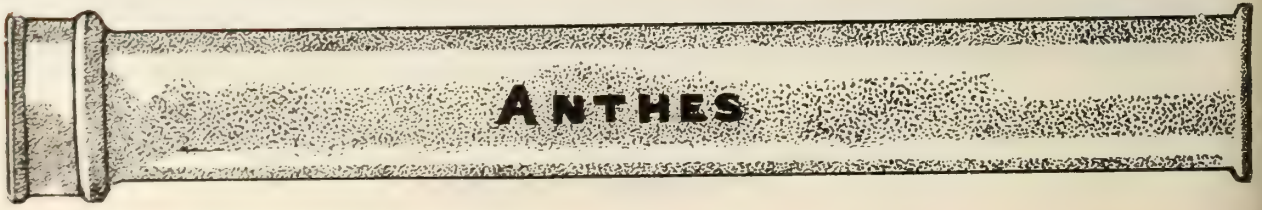
Get In On th



Canada is on the verge of a tremendous boom in the sale of rural sanitation equipment. Millions of dollars' worth of business is waiting for the Sanitary Engineers of this country to go after.

Standardize on Anthes Syphons Soil Pipe and Fittings.

There are none better.



Ground Floor

Rural dwellers want septic tanks and want them badly. In the not far distant future these rural dwellers, instead of waiting to be sold, will ask for sewage disposal systems voluntarily.

Naturally they will seek advice from the Sanitary Engineer in their district who has made a practice of installing equipment of this sort—that's natural.

If you aren't pushing the sale of sewage disposal systems—get in touch with us and let us show you how your turnover can be increased several thousands of dollars yearly.

The ANTHES Syphon

The very heart of the system is the ANTHES syphon. Made of the best material, simple in construction, and built on natural principles, it operates as safely and surely as Nature's laws.

Anthes Foundry

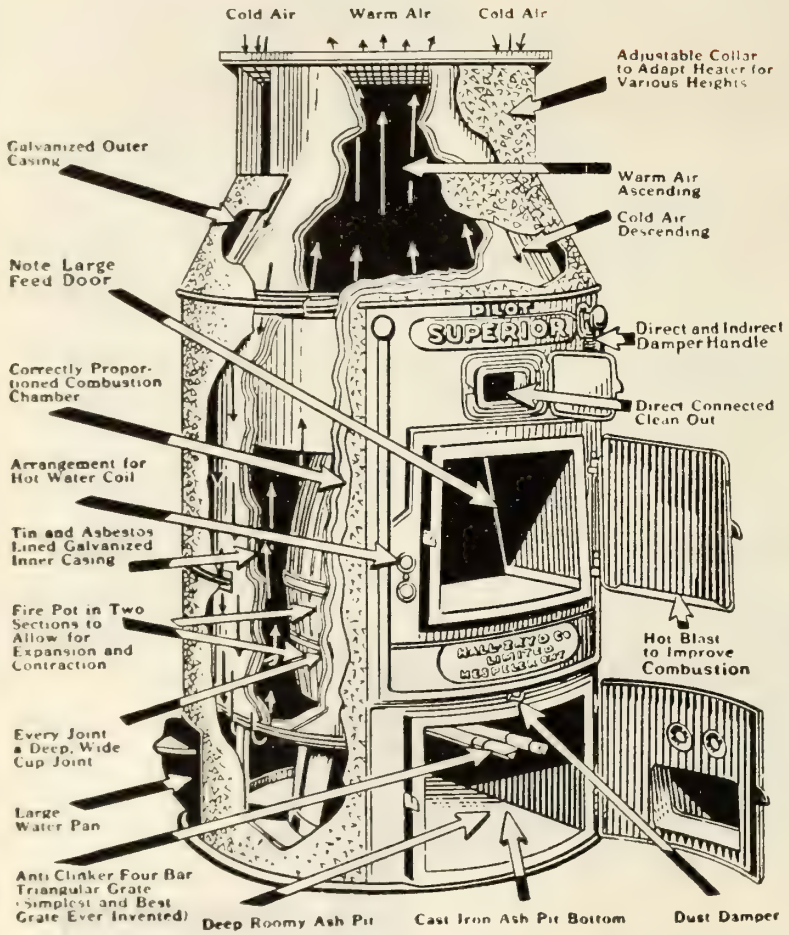
Limited

TORONTO and WINNIPEG

Manufacturers of

Cast Iron Soil Pipe and Fittings

All Roads Lead t
at the Toront


Cold Air
Warm Air
Cold Air
Adjustable Collar to Adapt Heater for Various Heights
Galvanized Outer Casing
Warm Air Ascending
Cold Air Descending
Note Large Feed Door
PILOT
SUPERIOR
Direct and Indirect Damper Handle
Correctly Proportioned Combustion Chamber
Direct Connected Clean Out
Arrangement for Hot Water Coil
Tin and Asbestos Lined Galvanized Inner Casing
Fire Pot in Two Sections to Allow for Expansion and Contraction
Hot Blast to Improve Combustion
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Large Water Pan
Anti Clinker Four Bar Triangular Grate (Simplest and Best Grate Ever Invented)
Deep Roomy Ash Pit
Cast Iron Ash Pit Bottom
Dust Damper

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Manufacturers of Pilot Sto

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The Pilot Exhibit

Exhibition

Welcome Folks—

Step right up and look at the Pilot Superior Pipeless Furnace. Take it piece by piece, compare it with any other heating unit on the market and you will agree that Pilot popularity is indeed well earned.

Look the Pilot over for yourself at our exhibit in the Stove Bldg., Exhibition Grounds.

Let's show you what the profitable Pilot proposition means to you.

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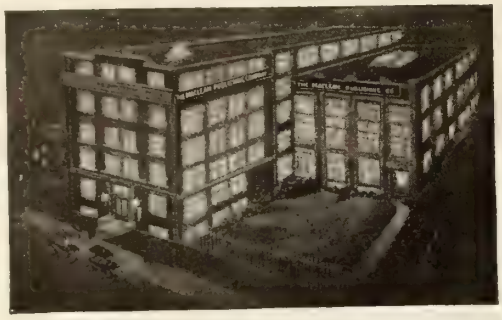

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143-153 University Avenue, Toronto

SANITARY ENGINEER
PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907 PUBLISHED TWICE MONTHLY

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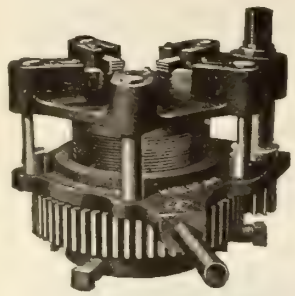

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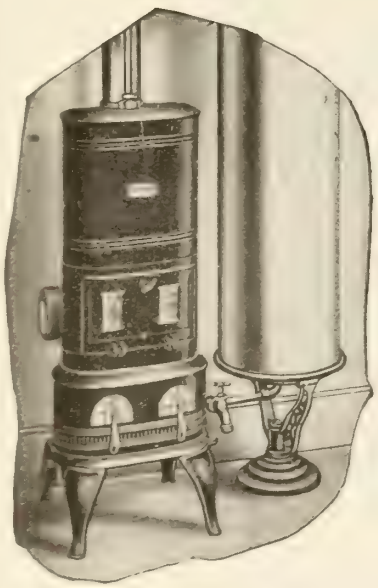

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Sanitary Engineer
Plumber and Steamfitter of Canada

Published First and Fifteenth of Month

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Four Advantages of Revised Sales Tax

Both Manufacturers and Wholesalers Charging Total Sales Tax on Transaction With Retailer and Eliminating from Tax Sales From Manufacturer to Wholesaler Would Relieve Wholesalers of Big Load, Facilitate Collection, Pass on Whole Tax to Consumers and Increase by 10 Per Cent. the Government's Revenue.

EDITOR'S NOTE:—That the means now taken and the means likely to be taken in the near future by the government for the raising of revenue by taxation, provide a subject of paramount interest among all branches of the trade to-day is indicated by the close attention which is being paid to any information secured as result of experience with present measures or as to taxation changes likely to be made in future.

In a recent issue of Sanitary Engineer appeared an article based on an interview with an authority pointing to the possibility of an extension of the Sales Tax principle of raising revenue. This article was reproduced in The Financial Post, the editor of which has received a lengthy communication from the general manager of a large supply firm with branches in most important cities throughout Canada. This communication brings out many interesting points of interest to retailers, wholesalers and manufacturers and is reproduced in full as follows:

"I HAVE read with very great interest indeed an article in your recent issue, entitled, 'Ottawa May Extend Sale Tax to Take Place of Income Levy.' With particular interest for the reason that the writer has been urging the administrators of the Act, up to and including the Finance Minister, constantly since early in December of 1921, to amend the administration in such a manner as to relieve the intermediate source of distribution of an unfair tax.

"It was freely admitted by all authorities interviewed that the fundamental principle of the Act was to distribute the load as widely as possible, or in other words pass on the entire tax to the ultimate consumer.

"When the tax was first instituted it was on a much lower basis than at present, and the sources of distribution lying between the manufacturer and the ultimate consumer, that is to say the jobber and retailer were under the impression from the indefinite wording of the Act, that a certain proportion of the tax should be chargeable against their profits and as the individual item was small the matter was not given proper consideration. Thus the practice came into being which, if continued, will have the effect of forcing the jobber and wholesaler into liquidation, as I am under the impression there is no jobber or wholesaler in Canada, except possibly in strictly luxurious lines, who makes an average profit over a term of years much in excess of 2¼ per cent. on the turnover.

Eliminate Tax on Certain Transactions

"My suggestion to the Government was that the tax should be eliminated on all sales from the manufacturer to the jobber or wholesaler and on sales from one jobber or wholesaler to another jobber or wholesaler, the classification of the jobber or wholesaler to be determined by license issued by the Government as at present. The manufacturer would, however, when selling direct to the retailer or consumer, charge the full tax of 3 per cent. as it was in December last, or 4½ per cent., as it is at present, and the wholesaler or jobber when selling the retailer or consumer would also charge 3 per cent. or 4½ per cent. tax as it is at present.

"If the Act were amended in this way it would have a fourfold effect.

"In the first place the jobber or wholesaler would be relieved of an unfair and unbearable load.

"In the second place the Government would collect its revenue from one source on each transaction, rather than from two sources, thus reducing the expenses of collection.

"Third, the entire tax would be passed on to the ultimate consumer, which is the fundamental principle of the Act.

"Fourth, the annual net revenue secured by the Government would be increased probably not less than 10 per cent.

How It Works Out

"In explanation, my statement regarding the increase is based on the assumption that the average jobbers' preferential is not less than 20 per cent. Using this as a basis, a bill of goods which the manufacturer would sell to the retailer for $1,000, would be sold to the jobber for $800. At present this bill of goods passing from the manufacturer to the wholesaler is invoiced at $800, on which the sales tax at 2¼ per cent. is $18. The wholesaler invoices the same bill of goods to the retailer at $1,000, on which the sales tax is 2¼ per cent., amounting to $22.50, so that on the double transaction the Government collects $18 from one source and $22.50 from the other, or a total of $40.50.

"If the manufacturer was allowed to sell the wholesaler free of tax and the wholesaler when re-selling the retailer charges a 4½ per cent. tax as suggested, the singe tax would amount to $45.00. In other words the Government would collect $45.00 from one source, being an increase of $4.50 or slightly over 11 per cent. more than from the double source.

"Furthermore, the wholesaler would be relieved of the necessity of absorbing the tax charged him by the manufacturer and in turn the manufacturer would be relieved of the necessity of absorbing the 2¼ per cent. tax which he finds necessary at the moment in selling direct to the retailer, in competition with the wholesaler.

Price to Retailer Also Increased

"It is freely admitted that the wholesaler cannot absorb this tax and exist. Failing action on the part of the Government to remedy the situation it will be necessary for the manufacturer to so amend base discounts as to protect the

wholesaler through which class probably 95% of the business of the country is transacted, and it will undoubtedly be found that any remedial action on the part of the manufacturer will add more than the amount of the tax to the ultimate cost of the goods. To illustrate —assuming the manufacturer's discount to the wholesaler is 60/17½% off. At present the gross revenue accruing to the manufacturer would be 33% on. The wholesaler, however, instead of making 17½% gross as was intended, must pay 2¼% sales tax, thus reducing the revenue below a living gross profit. To remedy the situation the manufacturer will amend the wholesale discount to 58/20%. This will increase the manufacturer's revenue slightly as it will in this case amount to 33.0%. The wholesaler in re-selling to the retailer in the first instance would invoice him at 60% off, so that the retailer's cost is 40% on. In the second instance would invoice the retailer at 58% off, which is equivalent to 42% on. Consequently the cost to the retailer is increased 5%. The retailer when re-selling to the consumer will probably add at least 33 1/3%, plus the tax which the retailer pays the wholesaler and manufacturer, and which he is entitled to charge to the ultimate consumer. We find in the second instance the consumer's cost would be 42 plus 33 1/3%, which equals 56% plus tax, still showing an increase of 5%.

"The increase will of course vary appreciably in the several lines of business in proportion as the base discount is over or under 60%, but it is safe to assume as experience has clearly proven that the manufacturer in revising base discounts will be absolutely certain to see that sufficient change is made to protect the source of distribution.

"I am quite confident it will be impossible to induce the Government to make the suggested change unless very considerable pressure is brought to bear, supported by large and influential deputations, and I trust most sincerely your publication will carry on the good work.

"I have been in constant correspondence for the last eight months with dozens of manufacturers and wholesalers in Canada, practically all of whom are strongly in favor of the suggested amendment."

DANFORTH BUSINESS MEN HOLD PICNIC

The business men of Danforth Avenue, Toronto, held their annual picnic in Withrow Park on Civic Holiday. Many thousands of people of the district came to partake in the numerous races, games and other contests arranged and many splendid prizes were donated. Addresses were given by prominent personages in the district, each pointing out the advantages of supporting the business men of the district for the benefit of the locality as a whole. There was plenty of ice cream and other refreshments for the hundreds of children who gathered, and throughout the day splendid music was provided.

Plumbing Inspector to Meet Operators

Plumbing Inspector James Young, of London, Ont., Realizes Advantages to be Gained by Intercourse With Plumbers

LONDON, Ont.—Plumbing Inspector James E. Young, plans to take up with the men in the trade shortly the question of holding regular meetings at which he can discuss with them practical problems which he meets in the course of his inspection work.

"I am sure,'" he stated to Sanitary Engineer, "that there are many matters coming up all the time that are of real interest and value to the men who are making installations. In the course of my work I run across a great many things that could be discussed to our mutual advantage. Some men have better ways of doing a job than others and by discussing points in connection with various pieces of work we could all profit. I would like to co-operate with the men in any way possible and I feel it would be to our mutual advantage to hold regular meetings and discuss matters in which we are all interested."

It is a long time since any effort along this line has been made in London, and many of the sanitary and heating engineers have on various occasions expressed regret that meetings were not held at which the men in the trade could get together and discuss mutual problems, get acquainted and discuss and plan matters of benefit to all.

Inspector Young is taking the question up with them and hopes to be able to announce shortly the date of a general meeting at which plans can be made for other meetings.

There are more men and more shops in the city now than ever before and with a busy year's work in hand, more

(Continued on Page 14)

Well! Whatcha Know About That!

WAS what Bill said, when the Boss told him that
Mr. Jones was kicking like a couple of mules
Because that last job had cost him $6.15.
Then Bill got his second wind and expounded thuswise:
"You 'member, Boss, that I left the shop just as the clock struck eight,
And, as Mr. Jones says, I got there at about 8.30. You know it is almost
As fast to walk as take the car part way. The order said to fix two taps
And they showed me the hot ones at the bath and basin.
But when I went to shut the stop cock off at the boiler it leaked at the
Spindle so I fixed it there and then. Afterwards they got me to fix some
More taps BECAUSE I WAS THERE and I had quite a bit of trouble with that
OLD STOP COCK on the main supply below the cellar floor. You know how they
Leak from the waste all over the place. Let's look up the sheet. Yes you
Can see it all written in the heading and the material tallys with it.

Time of Plumber 3½ hours at $1.40	4.90	
1 Adjustable Spindle	.60	
2 5-8 in. Washers	.20	
2 1-2 in. Washers	.20	
2 Bath Coupling Washers	.10	
1 Spindle Packing	.15	$6.15

NOW, BOSS, I don't s'pose I am any jim crack speed artist
But I work as fast as the next guy and do it right.
I get $3.15 for nearly a half
day's work, and you get a NET
PROFIT of about 75c. on the job.
According to what Jim there in the
office has told me, and you only
get that when you get paid, which
may be six months from now
or perhaps never. And you might
have to knock something off to
get it settled. SAY, BOSS, isn't
it about time we started telling the
public JUST WHERE WE
STAND before a lot of this stuff
turns us into Bolsheviks."

—*K. B. Allison.*

Feeding Boilers by Gravity Process

A System That is Specially Suited to Steam Heating and Similar Installations—Rise and Fall of Pressure in Lifter Drum Utilized to Admit Steam From Boiler to Feeder at Proper Time

Written exclusively for Sanitary Engineer by MAJOR JOHNSTONE-TAYLOR

A SYSTEM has been recently introduced for the above purpose, named the "Auto Thermal Feed." Moving parts are practically absent in its construction.

The apparatus depends upon gravity for its operation, and it possesses the advantage that it can deal with water at high temperature and can, therefore, make use over again of the water which may have been evaporated together with the water from a feed heater and from steam traps.

The arrangement of the apparatus is shown in Fig. 1 in conjunction with an overhead feed tank and exhaust steam feed water heater, while the important details are shown in Figs 2 and 3. In what is to follow the lettering refers to Fig. 1 and the numbered references to Figs. 2 and 3.

The main steam valve k which operates the lifter is shown in Fig. 2, while a section of the diaphragm valve n the duty of which will be described later, is shown in Fig. 3.

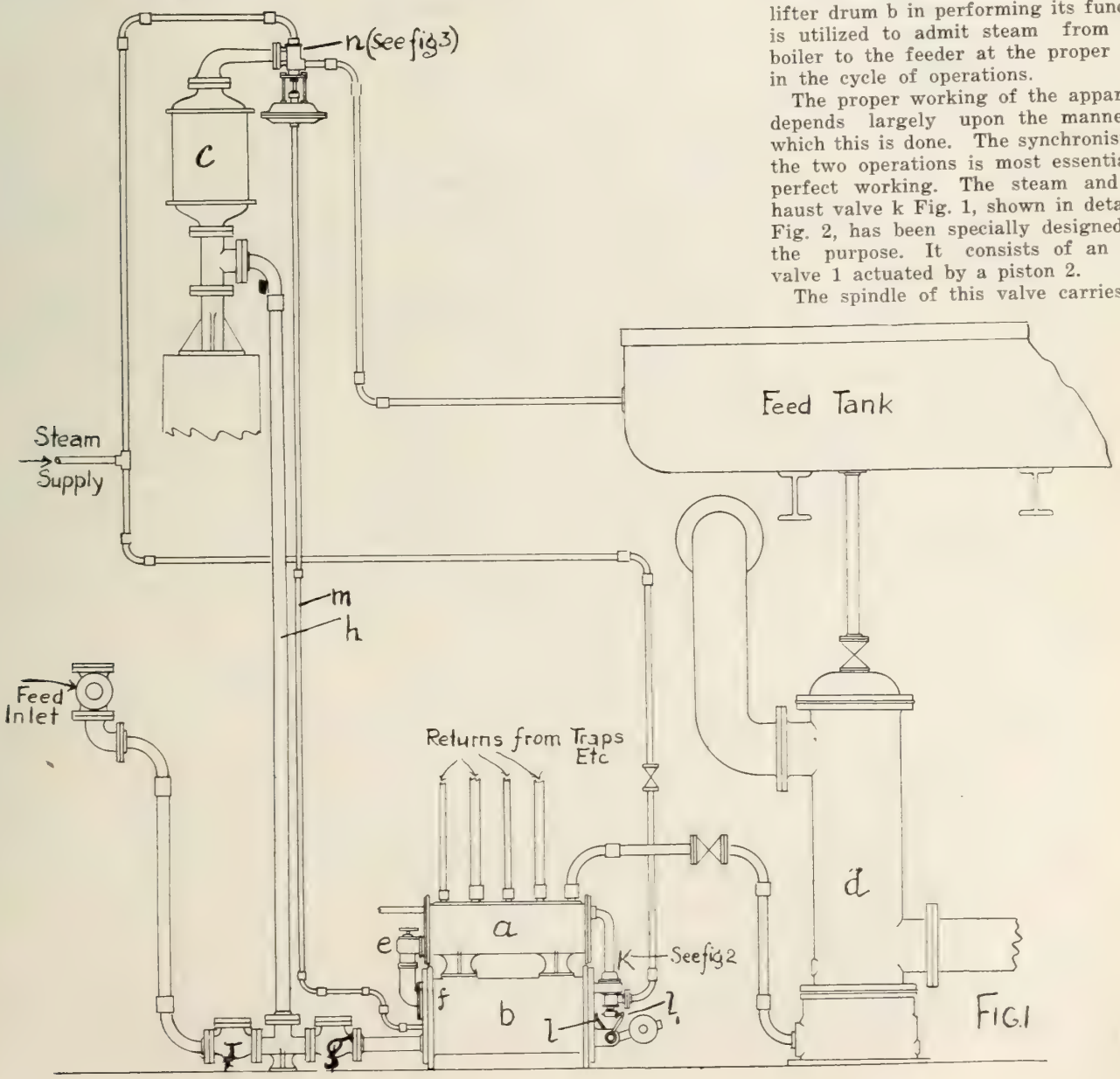
The appliance consists of a lifter a-b and a feeder c Fig. 1. The lifter receives all the water of condensatio from steam traps, etc., together with make up feed to the boiler and lifts it into the feeder c which is situated as shown some distance above the boiler. This water gravitates therefrom into the boiler.

The lifter consists of a receiving drum a into which any number of pipes from steam traps, etc., may discharge, together with the water from the feed heater d. All feed water therefore goes into a common vessel. From the receiving drum all the water gravitates through the valve e the opening of which can be adjusted, and a flap valve inside b at the point f to the lifter drum b. The latter is connected by means of the check valve g and a vertical pipe h to the feeder c, the pipe h also acting as a return pipe to convey the water from the feeder to the boiler through the valve j.

The rise and fall of pressure in the lifter drum b in performing its function is utilized to admit steam from the boiler to the feeder at the proper time in the cycle of operations.

The proper working of the apparatus depends largely upon the manner in which this is done. The synchronism of the two operations is most essential to perfect working. The steam and exhaust valve k Fig. 1, shown in detail in Fig. 2, has been specially designed for the purpose. It consists of an inlet valve 1 actuated by a piston 2.

The spindle of this valve carries the



exhaust valve 5, the two valves being so arranged that the movement of opening of the steam inlet closes the exhaust outlet and vice versa. The steam after passing through the valve k is delivered into the lifter drum b through a perforated pipe. A small hole 3 in the piston 2 of valve k permits a certain quantity of steam to pass the piston and put it into equilibrium.

The poppet valve 4 is for exhausting the steam from the underside of the piston 2 under the action of the two tappet arms 1 and 1_1 shown in fig. 1 which in turn are operated by a float in the chamber b which rises and falls as the lifter fills and empties.

A pipe m connects the inside of the lifter with the underside of the diaphragm 1 in valve n shown in detail in fig. 3, the plunger of which through the spindle 2 opens and closes the double beat valve 3, 4, 5, which alternatively admits live steam to the feeder c or exhausts the latter under the rise and fall of the pressure within the lifter.

The supply of steam to the feeder must be direct from the boiler, but that supplied to the lifter need only be of sufficient pressure to ensure the water being lifted into the feeder.

Assuming that the apparatus has just delivered a supply of water to the boiler the feeder c will be full of steam at boiler pressure, the valve 4 (fig. 3) being open to the boiler and the valve 5 closing to exhaust.

Similarly the lifter cylinder b being empty the float will be at its lowest position and the tappet lever 1_1 will be pressing the poppet valve 4 (fig. 2) against its seating. The steam pressure is thereby retained under the piston 2 which is then in equilibrium, the valve 1 being held against its seat.

The exhaust valve 5 being open, water which enters the collecting drum a is free to gravitate into lifter b raising the float and eventually opening the poppet valve by the tappet lever 1, thus exhausting the steam from below the piston 2.

The area of the top side of that piston being greater than the lower side of the valve 1, the steam pressure causes the piston to fall and open the valve Thus steam is admitted to lifter b and the exhaust valve 5 is closed.

The pressure in the lifter is conveyed through the pipe m to the diaphragm 1 of valve n figs. 1 and 3. which is forced upwards, closing the steam inlet 4 from the boiler and opening the exhaust 5, and as soon as the pressure in the feeder c has fallen sufficiently the water from the lifter rises into the feeder through the pipe h. The float in the lifter then falls and closes the poppet valve 4 again. Steam is thus shut off from the lifter drum b and the exhaust valve 5 is opened. The reduced pressure in the lifter brings down the diaphragm 1 in the valve n, closes the exhaust valve 5 (fig. 3) and allows steam at full boiler pressure to pass the valve 4 into feeder c thus driving the water into the boiler through pipe h, and non-return

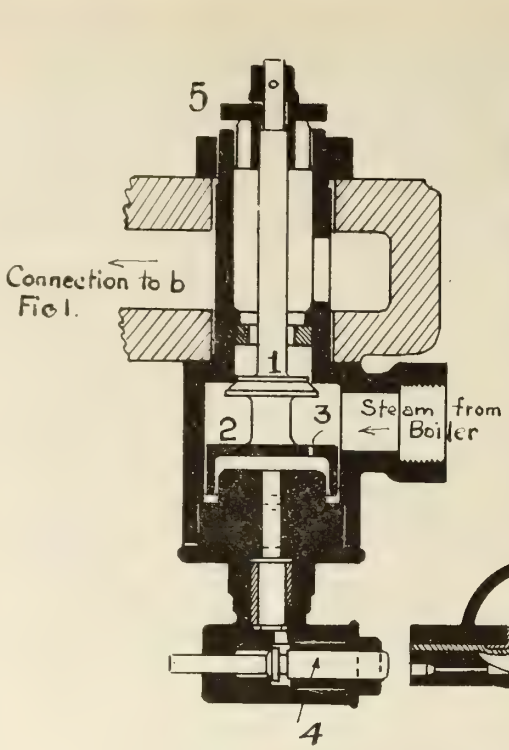


Fig 2

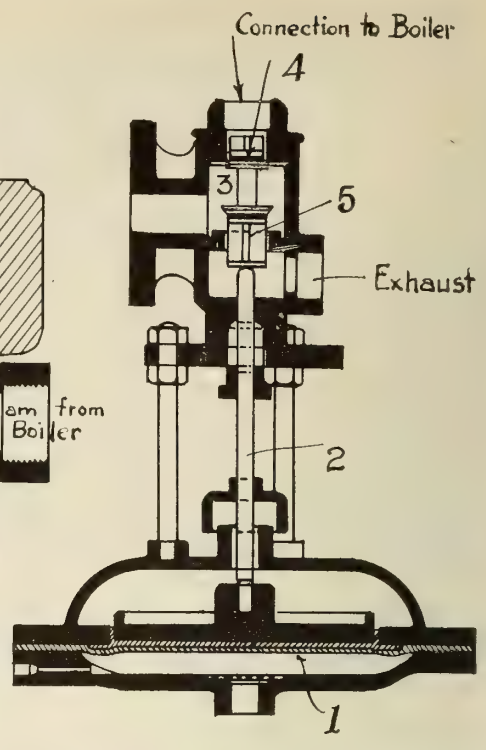


Fig 3

valve j thus completing the cycle of operations.

The valve k is the controlling factor in the whole apparatus, and was only perfected after considerable experimental work. It cannot stop in midtravel.

Altogether the apparatus shows a good deal of ingenuity, and although the foregoing may give the impression that it is somewhat complicated, the drawings will be sufficient to convince the practical man there is little if anything, to give trouble about it. The various pumps and injectors and other items that usually demand more or less constant attention at the hands of the fireman are dispensed with, and there are no doubt many instances where the system can be put to a most useful purpose. The apparatus is made in England under patents, by Royles of Irlam, Manchester.

PLUMBING INSPECTOR TO MEET OPERATIVES

(Continued from Page 12)

problems of a practical nature than ever.

Another matter that has been mentioned by some of the men in the trade is the question of getting together and having a Sanitary and Heating Engineers picnic. Practically every trade in the city has had an outing of some kind this season and many feel that it is not too late yet to get together and hold a picnic. So far the question is merely in the stage where a few are talking about it, but those who are interested may shortly take definite steps to arrange an outing. It is felt that if it were once started it would be so successful that it would automatically become an annual event, and be a real treat to all the men in the trade and help them and their wives and families to get to know one another better.

Travellers for various manufacturing and supply houses state that they would be glad to co-operate in the picnic arrangements and to attend and help in any way they can. The splendid outings that have been held by the men in Toronto and Hamilton are cited as an example of what can be done if the picnic is once started.

AMERICAN ROOFING NAILS REDUCED IN PRICE

A reduction of $1.00 per 100 lbs. is made in quotations on American large head roofing nails, and these are now quoted at $9.50 per keg with the usual two cents per lb. extra for smaller quantities.

DAMAGED CARGO TO BE SOLD

Montreal.—The damaged cargo of sheets from England on the S. S. Orphea, which ran aground in the St. Lawrence a few weeks ago, has now reached port. Upon investigation it was found that most of the boat load was damaged to some extent, although it is reported that some material has been taken into stock. There is however several hundred tons of galvanized iron and a smaller quantity of black sheets to be sold at a sacrifice. This portion will be sold by auction at an early date. Certain firms are said to be anxious to obtain a part providing the sheets are not too badly damaged, claiming that they can easily dispose of them if the price is not too high.

Patterns for Lip on Coffee Pot

Prepared for Sanitary Engineer by O. W. Kothe, Principal, St. Louis Technical Institute, St. Louis, Missouri.

IN construction gangs as for railroads, irrigating dams, and other places, where large cooking utensils are required, the sheet metal worker meets with much special work, not only for drip pans, boilers, but also coffee pots.

Our sketch shows how to develop the lip geometrically and while very few men would go to the trouble of laying out the lip for one vessel, still the treatment is interesting and is similar to all other conical problems that have oblique intersections.

We first draw the half elevation working from the center line and draw the half plan, which is divided in say equal parts, say, a-b-c-d.

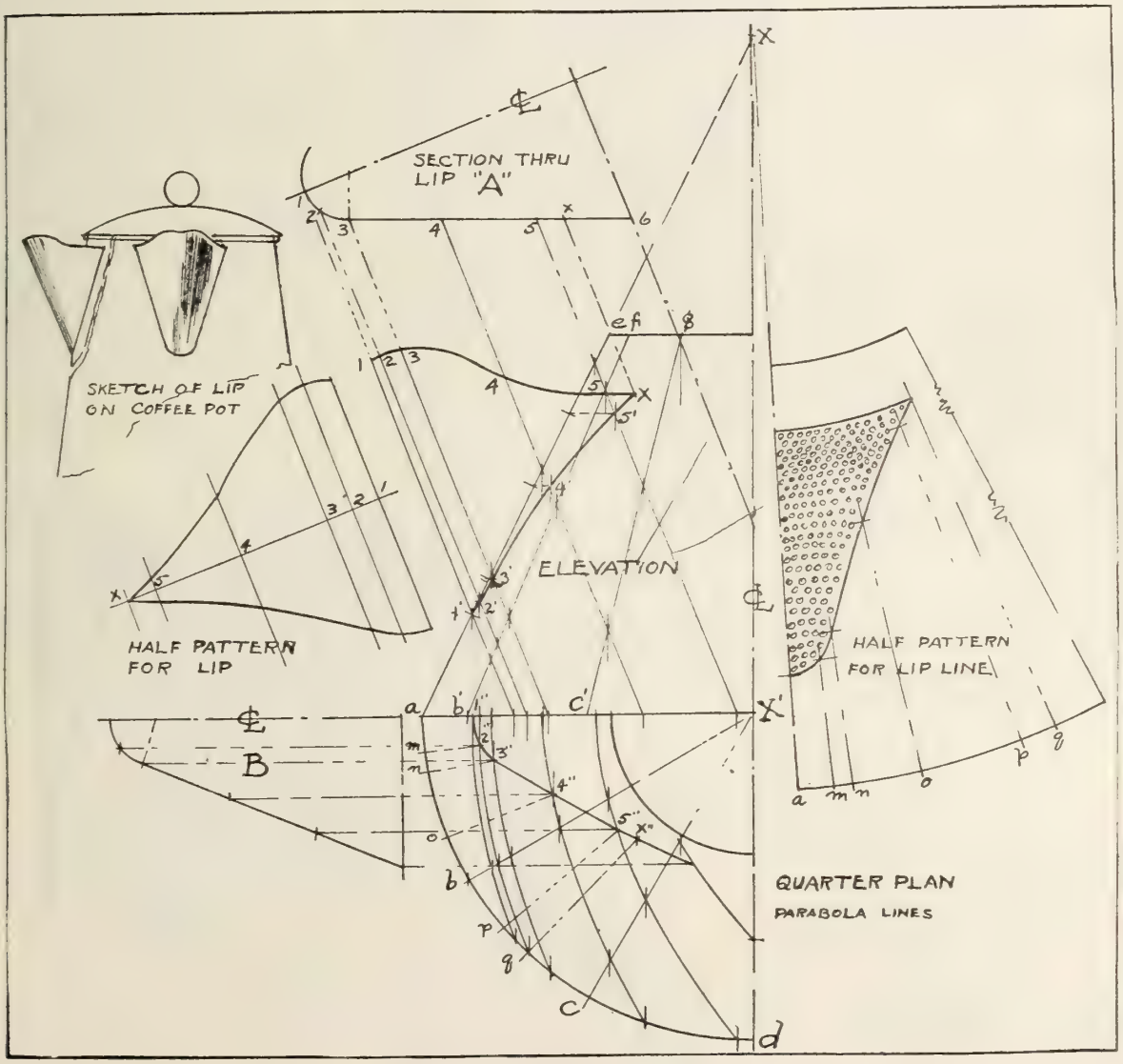
From these points we erect lines and draw the elevation lines as b′-f; c′-g.

Observe these lines correspond with those in the plan. Now by roughly sketching in the elevation lip, placing the angle as 1-1′, which enables us to draw the section through lip "A."

Divide the arc 1-3 in say 2 spaces and then divide the distance 3-5 in equal spaces.

From each of these points draw lines parallel with 1-1′ of lip to intersect the elevation lines and center line and the base. Now where these lines cross the elevation line a-e we drop lines to intersect as at a-X′. In the same way where each of the lines from "A" across the elevation line b′-f′, we drop lines to plan b-x′. Next from each point made in elevation line c′-g we drop lines to the plan line c-x′. Then through these intersections we trace the parabola line shown. After this we transfer section "A" with all its points to the opposite B.

For each of these points we square over lines parallel to a-x′ until they intersect parabola lines of similar number. This enables us to draw the outline in plan of the points of penetration between the lip and the taper as in points 1″-2″-3″-4″-5″ and X″. By erecting lines from these points into elevation we establish the points 1′-2′-3′-4′-5′ as shown. Sketch this line and where it meets with the top line 1-5, as in point x the finish of miter is established. After this the pattern for lip can be laid out as shown by picking the girth from "A." By similar conical treatment the pattern for the body showing the outlines on which the lip must fit is shown.



Patterns for Lip on Coffee Pot.

The Story of the Fireless Cooker and the Mail Order Catalogue at a Summer Hotel

How City Folk Who Are Accustomed to Modern Sanitary Conveniences Are Forced to Accept Conditions of Sanitation Little Better Than That of the Animals at Most Summer Resorts—A Wonderful Opportunity for Plumbers and Far-Seeing Hotel Proprietors

IF YOU keep tab on the motor cars that pass you or that you pass on the road, you will be surprised to find that there is an increasing number of American licenses on these cars.

That means the advent of "good-roads" has greatly popularized Canadian touring, and our American cousins in increasing numbers are touring to Canada for their summer pleasures.

The great lakes and the many little ones with good "fishing" and later in the season, "shooting," offer a cooling respite to the perspiring citizens of the big cities to the south of us.

What is Done for Tourists?

Now that the Provincial Government have made our roads "navigable," and distant points on our inland waters can be reached by motor, what is being done to accommodate the tourists after their arrival?

Ah, "there's the rub!"

The same old out-houses, the same old wash-pitcher with stagnant water standing in the same old cracked wash-basin, the same old Jerry with the missing lid—these are the old friends that are ready to greet us on our arrival at the average "summer hotel." They seem to smile at you and say—"Oho, you think you are going to have a good time—well we'll see that you have no body comforts if we can help it. This was good enough for Noah, so it ought to be good enough for you."

Can't Have Regular Habits

When a doctor sends a man away for a rest and holiday, his stereotyped orders are "fresh air, sleep and regular habits."

There is usually plenty of fresh air.

As to sleep, well that depends on the flies and mosquitoes, and if sanitation has been overlooked you can count on plenty of flies and mosquitoes and consequently little rest.

Regular habits! Can these be sustained in the midst of irregular conditions?

If you are used to sanitary appliances at home and the hotel you are staying at is similarly equipped, then it is a comparatively easy matter.

But if the sanitary conditions are such as our grandparents had to contend with in "the early days," then it is not so easy.

Won't Visit Uninviting Place

It is human nature to "put off" making a visit to a place that is uninviting and objectionable in every way. And you consequently "put it off"—your stomach and liver become upset and you feel miserable generally.

It is only a few weeks ago that I sat on a hotel verandah, at a well-known "Summer-Resort" waiting a couple of hours for the rain to stop so that I could pay my daily visit to "The Little Red House on the Hill."

The Organ Recital

And when it did stop raining I had to trek through the wet grass, soaking my "sneakers," followed by a mixed orchestra of flies and mosquitoes who wanted to be in on "The Organ Recital at the Crapateria Rusticana."

And believe me I had to wave my arms in double time, not to regulate the "tempo" of the music, but to make the "winged musicians" keep their distance. My sole idea was to get over with the "recital" as quickly as possible for I was not seated in "A bower of Roses."

So great was my haste that my spectacle-case took the "second hole."

Left as a Souvenir

Fortunately my spectacles were on my nose, and my nose was in its usual place (as I had good reason to know) so that I decided to leave the case as a souvenir rather than make any attempt to rescue it.

This was at a popular summer resort largely patronized by ladies from the city, with their children.

And I had good reason to know that many of them had not the courage to "parade" to the dump through the wet grass, under the eyes of a verandah full of guests.

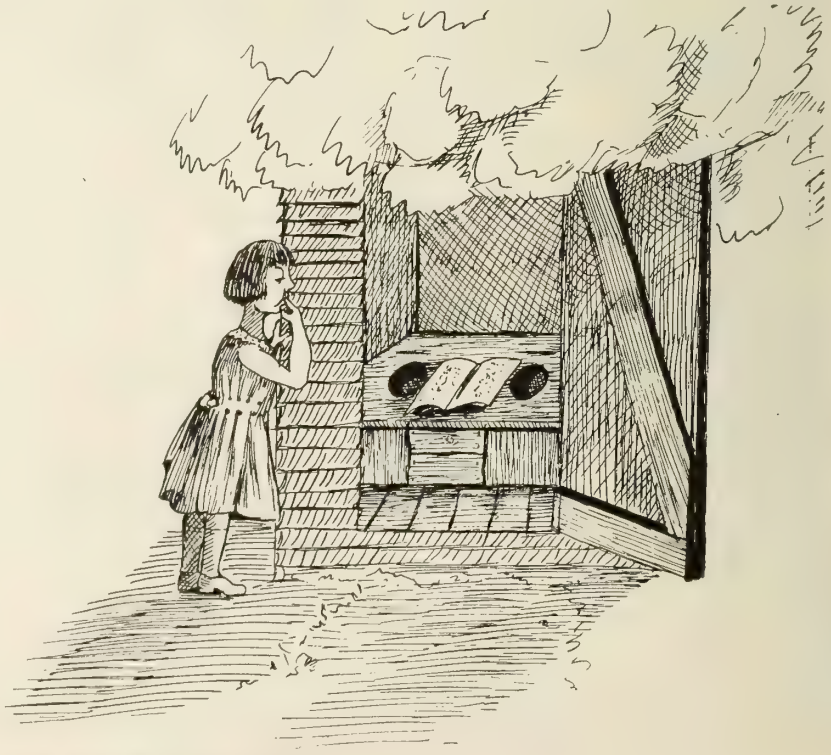
And nobody could blame them.

A Case of Ignorance

Maybe it is ignorance on the part of the "Hotel Keeper," that his "resort" has no sanitary equipment. Perhaps he is not aware that "modern conveniences" can be installed no matter where his location will be.

Let the local plumbers "put him wise," then if he is satisfied to continue in the same old way, some way may be found to shame him into "making a move."

If a live summer hotel-keeper advertised the fact that his place contained "modern conveniences," it is a safe bet that he would have a big waiting list, and that he would have "return business" the next season. People would be willing to pay a small extra fee for the extra accommodation, which would more than pay the interest on the investment.



The fireless cooker and mail order catalogue at the summer resort.

The fact that the proprietor of a summer hotel and his family have not known the advantages of modern conveniences, is no valid excuse why his guests should suffer in consequence.

There are people in the cities on the other hand who have been used to sanitary appliances all their lives and there is no good reason why they should be deprived of them when they take a few weeks' holidays.

A story is told of a nice little city girl who was making her first trip to "the lakes." She was interested in everything she saw—it was all new to her—she had never been quite so near nature before.

Finally she was forced to put the old question of "where is it," to the landlady.

Couldn't Find It

The landlady took her to the back door, and pointing to a clump of small trees some distance away said, "follow the path to those trees and you will find it."

After a while the young miss returned looking much worried.

"Did you find it?" asked the landlady.

"No," answered the little girl.

"Did you follow the path to the trees?"

"Yes."

"Didn't you see a little house there?"

"Yes."

"Did you open the door?"

"Yes?"

"Well—didn't you see it?"

"No; all I saw was a fireless cooker and a mail-order catalogue."

Little Better Than Animals

The little girl was neither ignorant nor stupid. She had had a decent bringing up; and how was she to know that in the country human beings fared little better than animals? She was made to suffer for the ignorance of others.

Some of our summer resorts have awakened to the fact that sanitary equipment is a paying investment and they are busy changing "the old order of things."

But there are many—alas, far too many—who have not yet "seen the light."

"Who will carry the glad tidings to them?"

Pack up your tools in your old kit bag and get busy, busy, busy!

WESTERN ONTARIO NEWS

Haines and Holmes of Norwich, Ont., have been awarded contract for installation of steam heating system in the public school.

W. B. Bradshaw, c/o Canada Trust Co., London, Ont., is preparing plans for store and dwelling to cost $7,000 and wants prices on hot air heating, plumbing and electrical work.

Plans have been approved by the Board of Education at St. Thomas, Ont., for additions to schools costing $105,000. Prices wanted on steam heating and plumbing equipment. R. Kilmer, chairman.

L. E. Carrothers, Board of Education architect at London, Ont., is preparing plans for new school to cost $80,000 and prices are wanted on steam heating, plumbing and electrical equipment.

INCORPORATION

The Economic Heating Co., Montreal, has been incorporated and will take over the former interests of the Victory Radiator Co. They will manufacture their line of radiators at 2,417 Notre Dame St., East, Montreal.

A Sad Truth:—"My good friends," began a temperance orator in an Englilsh town, "drink is the curse of the world. All the crimes, all the wars, all the heartaches of the universe can be laid at the door of intoxication."

He paused significantly and gazed around at his audience.

"Oh, my friends," he continued at last, "what causes more misery than liquor?"

Not receiving any reply to his query, he repeated the question, adding:

"Can anyone tell me that?"

The silence was broken by the little man at the end of hall.

"Thir-r-st!" he yelled.

* * * *

Not to be Trusted:— The editor in charge of the personal inquiry column opened his seventieth letter with a groan.

"I have lost three husbands," a lady reader had written, confidentially, "and now have the offer of a fourth. Shall I accept him?"

The editor dropped his pen in the ink. This was the last straw.

"If you've lost three husbands," he wrote, "I should say you are much too careless to be trusted with a fourth."

* * * *

A SAD REALITY

Said the architect to the builder,
With a large and mournful sigh,
"I'd like to give this job to you,
But, holy gee! you're high!"
"Oh, never mind," the builder said,
"I'll take it, anyway;
I'll just knock off ten thousand bucks
And make the suckers pay."
The subs came flocking 'round the job,
And pruning knives let fly;
But all the builder said to them
Was "Holy gee! you're high!"
He took their hide, he picked their bones,
And scraped each carcass dry.
They gave the money, brains and skill,
And he took all the pie.

T. S. of D. S. and H. E.
Moral: Get in on the pie.

Gay Time at Toronto Plumbers Picnic

Representative Turnout of Plumbers With Their Wives, Sweethearts, Children and Friends Enjoy Big Program of Sports and Contests at Exhibition Park—Much Excitement in Contests and Presentation of Prizes

IN SPITE of threatening rain which later materialized in large volumes, the annual picnic of the Toronto Society, Domestic Sanitary & Heating Engineers, was held at the Exhibition Grounds, Toronto.

Many master plumbers with wives and kiddies turned out together wi a number of representatives from the plumbing and heating supply houses.

Although a baseball game was scheduled to commence at 3 o'clock, rain held up the game for over an hour and the picknickers gathered in the Horticultural Building where the ladies were busily engaged preparing supper.

Much to the delight of the kiddies, Dave Norwich, assisted by Archie Melhuish, got the ice cream freezers into action and a swarm of eager little hands were soon stretched out for cones.

Toys Are Popular

Ed. Needham and Jim Bell of the Wolverine Co., had come well supplied with pockets full of toy balloons, and as soon as the children got wise to the source of supply there was a veritable 'run on the bank.' "Where did you get it?" was the question every kiddie with a balloon was asked by eager companions and as the supply was equal to the demand, there were no disappointed faces.

Bill Cunningham of W. H. Cunningham and Hill was there all tanned up from his holiday and telling everyone about the big catch of fish he had made.

Major Laurie Anthes was on the job with his million dollar smile and the cigar manufacturers report business good as a result of the Major's generosity in this respect.

The Ball Game

As soon as the rain let up about 3.30, tracks were made for the base ball field where an exciting game was put on by the Plumbing and Heating Supplies' teams.

Bassill who pitched for Plumbing threw 'em high, wide and handsome for awhile, but finally managed to hold his opponents to a few scattered hits.

W. Booth on the Heating team knocked the ball all over the lot much to the disgust of the outfield.

Patterson, Horsburgh and Menzies all slugged the leather for home runs to the delight of the watching crowd, whom Tom Maxwell had provided with Megaphones, even to the youngsters, so that there was lots of noise.

Line Up of Teams

The line up of the teams was as follows:

Plumbing, Messrs. Bodington, Bassill, Needham, Patterson, Horsburgh, Spring, Willy, Anthes, Cooke.

Heating, Messrs. Booth, Hill, Madden, E. Byrne, Long, Tuckey, Hungerford, Ford, Menzies.

Plumbing finally beat Heating with a score of 10-8.

One of the features of the game was a sensational slide to second by Major Laurie Anthes who slipped on the wet grass and took several somersaults before he could stop.

In the meantime Tom Maxwell, with a megaphone bigger than himself, and J. R. Brown were supervising the games.

Luckily most of the games were over before the rain started again and every one adjourned to the Horticultural Building where the program was proceeded with.

G. Frankland is Fleet of Foot

Garrett Frankland, the genial and hard working secretary-treasurer of the Toronto Society, again demonstrated his fleetness of foot by winning the fat man's race.

That the ladies provided an excellent supper was vouched for by everyone present and great credit is due to their untiring efforts to make the meal a success.

Prizes Distributed

After supper prizes were distributed to the lucky winners of the different games and W. J. Cracknell of the Prize Committee showed that he was a good picker, judging from the expressions of delight with which the prizes were received. The winners of the sports for the older contestants were as follows:—

Single engineers, 1, Will Purdy; 2, Wilfred Menzies; 3, Addis Byrne. Married engineers, 1, Emmett Byrne; 2, William Booth; 3, John W. Cracknell.

THE EXECUTIVE COMMITTEE MEN WITH THEIR WIVES

The occasion was not as serious as the expressions would seem to indicate and not in keeping with the merriment which was indulged in at the table reserved for the members of the Executive Committee of the Toronto Society D. S. & H. E. at the annual picnic. Starting with the familiar figure of Secretary Garrett Frankland at the rear of the table about to take a small bite of cake, and going to the right around the table are the following—Geo. Yeates, Captain of the Supply Men's Baseball Team; Mrs. A. E. Melhuish, Thos. Maxwell, Games Committee Chairman; Percy C. Mansell, President; Mrs. Thos. Maxwell, Mrs. W. J. Cracknell, W. J. Cracknell, Prizes Committee Chairman; Miss Grundy, Mrs. Grundy, Mrs. Holdman, Mrs. J. R. Brown, David E. Norwich, Refreshments Committee; Addis J. Byrne, Chairman; Mrs. Emmett Byrne, Emmett Byrne, Archie E. Melhuish, Referee: J. R. Brown, Games Committee.

GROUP AT TORONTO SOCIETY D. S. & H. E. PICNIC

Part of the large crowd turned out to the annual picnic of the Toronto Society D.S. & H.E. at Exhibition park, Toronto. A pleasant feature of the affair and one which did much to ensure the success of the event was the large attendance of plumbers' wives, sweethearts, children and friends. A number of familiar faces of supply house representatives, manufacturers and officials of the Ontario Society are to be noted.

Supplymen's race, 1, Walter Newbold, (James Morrison Brass Co.); 2 John Willey, (W. A. Porter & Co.); 3, A. Horsburgh, (Empire Brass Co.) Committee race, 1, Thomas M. Maxwell; 2, David Norwich; 3, J. R. Brown. Ladies' and gents' Necktie race, 1, Mr. and Mrs. A. E. Melhuish; 2, Mrs. Jas. Brown and A. Long (Taylor Forbes Co., Ltd.); 3, Mrs. Holdman and W. C. Boddington, (James Morrison & Co., Ltd.); 4 (Booby) Mrs. Tom Maxwell and Ernest Cooke. Balloon race (ladies), 1, Mrs. Phil. Cockfield; 2, Miss Dorothy McMaster; 3, Mary Shearer. Fat men's contest, 1, Ernest Cooke, (Cunningham & Hill Co.); 2, G. F. Frankland; 3, Maj. L. Anthes, (Anthes Foundry Co.) Married ladies drawing competition, 1, Mrs. Wm. Keating; 2, Mrs. Potts; 3, Mrs. W. J. Cracknell; 4, Mrs. Bowes. Golf putting contest, 1, Mrs. Phil. Cockfield, (Toronto Hardware Mfg. Co., Ltd., Donators.)

Strikes Encourage New Departures in Heating Equipment

Architects Expect to Make Big Reduction in Apartment Rents by Substituting Gas Heating of Individual Radiators

LONDON, Ont.—Keen interest is being taken in connection with heating matters as a result of the shortage of coal and the developments in the railway strike. Men in the trade are watching with special interest a plan which Architect W. G. Murray is working out for Charles Brennan who hopes to do away not only with all coal and ashes shovelling, but with janitor service as well. He expects to make a big reduction in rents in this way and by making the tenant look after his own heat, give him a lower rate than could be obtained otherwise.

By installing in each room a water radiator to be heated from a gas jet, Mr. Brennan believes he has solved the problem. Discussing the question with Sanitary Engineer he pointed out that by this plan the occupant of an apartment could have the rooms just as hot or cool as desired.

"Also," he said "as many rooms can be heated as are required. Some people like only one or two rooms heated. Others want them all. It is extremely difficult for a janitor to satisfy everyone. I propose to erect an eight suite apartment in which each room will be heated from its own individual radiator. The tenant can have one or all the rooms just as hot as he wishes. He will pay for all gas he uses and this will enable me to make the rent far lower than in ordinary apartments as I wi have no coal to buy, no janitors to pa and no ashes to look after. Plans a now being prepared and I expect to start work on the buildings shortly."

The suggestion has been made that if gas would work out in this way tha electricity might work equally as well. This matter will probably be inquired into shortly.

In connection with the general heating problems, it is interesting to note that the officials of St. Peter's Diocese have under consideration the building of a central heating plant which would look after the cathedral, the parish hall, a public school and the seminary.

These are all large buildings and by having them heated from one unit it is believed that three janitors could be dispensed with and large quantities of fuel saved as the heat could be directed from one building to another when not in use and there would be no need of banking fires, etc. The estimated cost is $20,000 and construction work on the plant may be commenced this fall.

Another local party who is considering a central heating plant is E. W. Moore. He has under consideration a scheme for supplying heat not only to his own block of business buildings, but to all parties in the block. The matter so far is merely under consideration, but it is understood that plans and estimates will be secured and the matter thoroughly gone into.

TENDERS WANTED AND CONTRACTS AWARDED

Toronto, Ont.—Plumbing contract for 3 residences costing $7,500 each for T. W. Robinson, 11 Evelyn Cres., is awarded to P. Cockfield & Co., 1265 St. Clair W.

Niagara Falls, Ont.—W. G. Reed, 68 Ellen Ave., has plumbing and heating contracts for transformer station costing $85,000 for hydro electric system.

Toronto.—Additional contracts for 6-6 family apartments, costing $25,000 each for Jno. Henderson, 666 St. Clair W., are: plumbing, F. W. Johnston, 85 Tyrell Ave.; heating, Pantry & Brown, Oakwood Ave.

Vancouver, B. C.—Plumbing and heating contracts for stores costing $35,000 for Pemberton & Son, 418 Howe St., are awarded to Barr & Anderson, 1060 Homer St., and Bernand and Boe Ltd., 132 Cordova St., W.

Ottawa, Ont.—Plumbing and heating contracts for residence costing $12,400 for David Arbuckle, 392 Daly Ave., are awarded to Mr. Blaise, Hull, Que.

Port Credit, Ont.—G. W. Gordon, Town Clerk, will receive tenders until Aug. 21st for construction of waterworks system. Plans with Gore, Nasmith & Storrie, Engrs., Confederation Life Bldg., Toronto.

Brockville, Ont.—D. M. Ross, Brockville, has general contract for erection of bldg., costing $25,000 for Masonic Bd. of Trustees. H. S. Brown is awarded plumbing and heating contracts.

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The Spread of Sanitation

THE INCREASING appreciation of the need for strict sanitation in connection with plumbing and waterworks installation in modern times is seen in the action of the city of Hamilton in giving to the Toronto firm of Gore, Nasmith and Storrie the work of installing a waterworks and sewage system for that city which will guard against pollution of drinking water. Hamilton has been faced with a real problem in this connection for some time, the city having passed the hundred thousand mark in population and using a waterworks system grossly inadequate for such a city. Dr. Nasmith of the firm which will do the work is an outstanding bacteriologist and he was the first in Toronto to realize the value of chlorination as a water purifying process, a process which has been adopted the world over and which saved many lives in the war. Hamilton's ultimate expenditure on new sewers and plant will probably be about $2,500,000 but the sanitary value of this new equipment will be very great.

Fall Prospects for Plumbing and Heating Installation

THE PLUMBING and heating industry will be interested in the following details showing a revival in building activity in Canada, and indicating the change which is taking place in the class of building construction and which will therefore have different requirements of plumbing and heating installations.

Last month the wholesale price index of 43 building materials advanced slightly, and is now 79.7 per cent. above 1913, compared with a peak of 183.8 per cent., reached in May, 1920. Prices have now declined 36.6 per cent. from the high. The recent slight upward trend in material costs is the result of a sudden demand for material and labor at a time when material stocks were low. It is interesting to note, however, that production is increasing, and that a large proportion of the building material plants are working full time, and in many cases overtime, in order to meet the demand. It is not anticipated that cost increases will be great; in fact, the cost of building will, over a long period of years, decline gradually with here and there a brief increase, as the volume of activity becomes unusually large. This is a logical prediction, and indicates that the average building project may now be undertaken without fear of a too great decrease in reproduction value, with a consequent shrinkage of investment and mortgage loan collateral.

It is apparent that we have passed the crest of the first wave of building activity represented by speculative development. We are now entering the second and sounder period, wherein better types of buildings will be constructed, and there will be much greater activity in architectural offices. Many large building projects which have been held up during past years are now being rapidly developed into the contract stage, and considerable activity is in prospect in the better types of housing, and the provision of a great number of educational and institutional buildings, public buildings and business buildings. Now that general business conditions have become partly readjusted, good harvests should prove an active stimulant. If they turn out as well as now predicted, they ought to put a decided kick into Fall trade.

The Canadian National Exhibition

THE CANADIAN National Exhibition to be held in Toronto this year from August 26 till September 9 provides everyone, including sanitary and heating engineers, with an unique opportunity to combine business with pleasure in a few days which should be of great benefit. From the recreation standpoint it does every business man good to get away from his shop for a few days and visit among new surroundings. Under such conditions his mind is in a receptive state and he is quick to pick up new ideas or improvements which he could make to advantage.

From the standpoint of business assistance, the exhibition offers the opportunity to examine at close hand a great deal of plumbing and heating equipment. Here the new lines being offered to the trade are on display and the plumber has an opportunity of comparing the various equipment at close range. Talks with the representatives of the various companies will also provide some new slants on the selling problem. Plumbers visiting the forthcoming exhibition will have many exhibits to concentrate their interest on dealing with lines specially adapted to their industry, and there will be many other exhibits of educational value to those who are interested in national developments. The exhibits showing the dangers of unsanitary conditions and the needless expansion of the death rate from this cause will also give some good pointers to pass on to customers and prospects.

Do Not Misrepresent

MISREPRESENTATION never pays. This is a truism whether it is applied to the individual, the man in business, the manufacturer or in fact to anyone. J. T. Crowder, president of the British Columbia branch of the Retail Merchants' Association, in addressing a gathering of the Kiwanis Club in Victoria, B.C. the other day cited the experience of a British trade representative when travelling through South Africa at one time. He had purchased a five cent lead pencil, and proceeded to sharpen it, only to find that the lead did not extend far into the wood. He tried the other end of the pencil and found the same fault, and so took the pencil back to the merchant who had sold it to him. He learned that the article was a product of Japan. Later the trade representative was sent through the Empire, speaking on trade matters, and he never lost an opportunity to tell about the pencil, and thus through the dishonesty of a Japanese manufacturer, great damage was done to the reputation of Japan.

ABOUT FISH—But Not a "Fish Story"

AT THE annual Field Day of the Toronto Society, D.S. & H.E., W. H. Cunningham of W. H. Cunningham & Hill, Toronto, just back from a few weeks vacation at his summer home at White Lake, told some strange tales about the wonderful catches he and his family had made.

shows W.H.C. himself with daughter, mother-in-law, son and Mrs. Cunningham, who among them made the splendid catch shown in the short space of 2½ hours.

It's a "limit" catch and consists of 32 black bass which run in size from 1½ to 3½ lbs.

In spite of the fact that W. H. C. has never been caught stretching the truth everyone seemed to accept his "fish stories" with a grain of salt and knowing winks.

"I'll show you unbelievers," said Bill wrathfully.

So—here's the result. The picture

"Where's Salmon Lake," we asked innocently, feeling a great desire to spend a few days in this fisherman's paradise.

"Oh, you go take a jump in the lake," said W. H. C. with a grin, "and find out."

No Decision Regarding Furnace Prices

Rising Costs of Raw Materials Caused Movement to Pass Along Advances—Manufacturers Watching Coal and Rail Strike Situation—These Conditions Offset the Possibility of Easier Levels—Will Not Increase Prices Unless Forced to Do So

REFERRING to the recent reports that production costs of furnaces and ranges were going up and that prices on these products may have to be advanced in the near future as a result, one manufacturer stated to Sanitary Engineer that the conditions outlined undoubtedly contributed towards such a situation, but they would not consider advancing prices unless absolutely forced to do so. It was pointed out that with the increased cost of foundry iron, coal, sheets and plates, all of which materials enter into the manufacture of stoves, ranges and furnaces, production figures have recorded a marked rise. That a movement to reflect these higher levels in the quotations on furnaces, etc., for the coming season had been noted in certain quarters, was also admitted.

It was further stated, however, that the scarcity of coal combined with the transportation difficulties were the two principal factors which stove and furnace manufacturers were now watching, and unless these conditions became much more drastic no immediate action of a price nature was being considered. That it was not considered advisable to increase prices at this time of the year, was the impression, even although primary costs might warrant such a change.

On the other hand, however, no indication regarding the actual trend of prices could be secured, it being explained that the situation was indefinite and would probably remain so while present conditions existed in the raw material markets. That some reductions might have been announced seems to be the feeling in some quarters, was the opinion of this manufacturer, if the factors above outlined had not caused producers to re-consider cost figures in relation to selling levels. As it is, the present situation tends to decidedly strengthen the present quotations.

E. Jenkins, secretary of Y.M.C.A., London, is preparing plans for new residence to cost $7,000, and wants prices on heating, plumbing and electrical equipment.

Catalogues and Booklets

NEW PEASE CATALOG

The Pease Foundry Co., Ltd., Toronto, are now distributing to the trade their new catalog No. 90. This covers a range of warm air furnaces, combination furnaces, registers, hot water boilers, steam boilers, radiators, fittings and valves. This is a compact, well-bound little book, comprising 160 pages of useful information. Specific illustrations and full particulars accompany the description of the various products; details regarding dimensions, installation and other practical data attracting special attention. Many other products are also listed and described, including asbestos, bungalow heaters, humidifiers, damper regulators, duplex gratings, expansion tanks, floor and ceiling plates, gauge glasses, heat generators, pipe covering, condensation pumps and thermometers.

OUR HOMES

This is the title of another book written by J. S. Kingston, dealing with such subjects as "how to make the home healthy for breathing and living in," and "how to prevent the high cost of unnecessary sickness." It is a book primed with pertinent health factors which the Sanitary Engineer can advocate in the successful extension of trade in the plumbing and heating fields. Such vital subjects as ventilating, humidity in the home, steam and hot water heating, hygiene, ventilation of sleeping rooms and workshops, etc., food and drinks, bathing, sanitation, exercise, colds, fresh air, and similar chapters supply a number of useful pointers which can be utilized in the drive for extension of universal sanitary measures and the adoption of modern scientific fixtures in both city and country districts. In the spreading of such ideals and objectives, the plumber and sanitary engineer plays a most important part.

MODERN PLUMBING ILLUSTRATED

"Modern Plumbing Illustrated," is the title of the 1922 edition of a comprehensive and thoroughly practical work on the modern and most approved methods of plumbing construction, written by R. M. Starbuck. In the introduction to the latest work, attention is called to the fact that the first appearance of this matter was published in 1899, under the title of The Starbuck Plumbing Charts. This pioneer in the matter of presenting in book form the practice and theory of plumbing as carried on in this country has now grown into the book Modern Plumbing Illustrated. The 1922 edition contains seventy-two full-page plate illustrations of modern installation methods with accompanying text matter. Including the index, there are over 400 pages in the volume devoted to specific matter of interest to the sanitary trade.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

NEW FIRMS

Mt. Dennis, Ont.—Jenkinson & Lowery have commenced a plumbing and heating business at 1011 Weston Road.

D. W. Kennedy & Son, have commenced business with a first class stock in the heating engineering business at 2033 Yonge street, Toronto, Ont.

FIRE LOSS

George Holder, Plumber and Tinsmith, Sutton, Ont., suffered fire loss.

INCORPORATION

Wise Heating and Plumbing Co., Ltd., has been incorporated with head office in Toronto and capital of $40,000 to manufacture and deal in metals, tiles brass goods, and all equipment and tools applying to the plumbing and heating industry.

J. E. FARRELL GETS APPOINTMENT

The Canadian Morehead Co. of Woodstock, have appointed J. E. Farrell Director of Sales for their return traps with office at 210 Galley Ave., Toronto. Mr. Farrell was engaged for several years with the Geo. W. Cole, Ltd., previous to that firm going out of business. He has had long and varied experience in the handling of steam and condensation problems.

JOHN TWEDDLE COMPANY NOT OUT OF BUSINESS

Montreal.—An erroneous report has been circulated that John Tweddle & Co. is out of business. Since the death of the late Mr. Tweddle the company has been incorporated to carry on business as plumbing and heating contractors, taking over the old business of John Tweddle & Co. as a going concern.

KINGSTON PLUMBERS TEAM HEADS THE LEAGUE

Kingston, Ont.—The plumbers proved their right to hold the top position Group B of the Mercantile League, when they defeated the Tanners at the cricket field 10-7 before a large crowd. Both teams were going well at the beginning, but the superior swatting system of the Plumbers soon told and the Tanners' hurlers could not stand up against it.

Tanners looked like the winners when they rattled off five runs in the very first inning and were playing like little marvels. Then Plumbers, with that old come-back stuff that has made them famous in Mercantile circles, banged right back in the second inning and evened the count.

Plumbers—Shangrow, c; Fenning, p; H. Richards, lb; Lawless, 2b; Murray, ss; Arneil, 3b; Ferguson, cf; McGuire, rf; S. Richards, lf.

CALL FOR TENDERS

Port Credit.—As a result of the plans for the new Port Credit water works being accepted by the Provincial Board of Health, Reeve Parkinson called special meeting of council at which a motion instructing the town's engineers to call for tenders was passed.

WORK FOR PLUMBERS AND STEAMFITTERS

Plumbers and steamfitters are fairly well employed throughout Ontario at present, William Storey, business agent of the local union, stated. The Pipe Council, which is composed of delegates from local unions and meets every three months, held its regular meeting here. According to Mr. Storey, delegates reported an improvement in conditions since May 1. Harry Oliver, Secretary of the Council, was presented with a gift upon his retirement.

STRATFORD PLUMBING ACTIVE

Stratford, Ont.—The building boom in the city this year has not yet reached its limit, apparently, as still more houses and buildings are being authorized. The total value of all buildings up to the end of July was $602,181. For the same period last year the total was only $189,799. During July 29 permits were issued valued at $41.157. An indication of the amount of little jobs being done is found in the fact that 42 permits for plumbing and drainage work were also issued during the month.

BEACH FOUNDRY ERECT NEW FACTORY

The Beach Foundry Co., Ltd., Ottawa, have recently erected a new factory, which has a number of special features. The manufacturers point out that this plant is of modern fireproof construction throughout, and provides some 85 - 000 sq. feet of floor space. The buildings are of all brick and cement, with no artificial light. It is adjacent to the railway and provisions have been made for future extensions.

This company moved from Winchester in 1914 and took over the Butterworth Foundry at Ottawa. After three years, the Beach Foundry Co., outgrew this plant and state that they have been forced to build. The latest labor-saving devices and machinery are installed, and visiting foundrymen have paid high tribute to the new plant operation. This increased capacity enables an output of six thousand furnaces per year, both piped and pipeless. Branches are at Winnipeg and Vancouver.

CRANE LIMITED DONATE CUP

Montreal.—A new and valuable cup has been donated to the Manufacturers' Hockey League of this city by Crane Limited, through R. T. Crane, Jr., for competition next winter and years following. Mr. Crane is very interested in hockey and decided to give the cup as a perpetual challenge one. Firms which competed in the league last year were: Imperial Oil, Northern Electric, Berliner Gramaphone and Crane Limited, but more teams are expected this coming season as new applications for entrance have already been received.

WINNERS IN WEIGHT GUESSING CONTEST

In the weight guessing contest conducted by the Dominion Sheet Metal Corporation, Hamilton, Ont., as to the weight of Premier galvanized sheets made by this firm since its commencement up until July 1, 1922, the following were prize winners:—E. A. Whitten, The Whitten Co., Ltd., Bracebridge, Ont.; A. Macnish, A C. Leslie & Co., Toronto; Albert Lane, Hardware Dept. Security Lumber Co., Vawn, Sask.

The correct number of tons was 65,104. The first prize was a gold watch valued at $50, second prize a leather bag valued at $25 and third prize a carving set.

SAYS POISONOUS GASES CAUSED BY TANNERY TANK

Kitchener.—C. R. Hazzen, Montreal chemist expert, has reported to the City Council that the poisonous gases on Margaret avenue, which caused the death of a sewer worker, are caused by a combination of chemicals in the septic tank of a local tannery. He suggests that when any men are working in the sewers in that vicinity that a vent should be placed on the manhole to draw off the gases. He also recommends that certain chemical elements used in the tannery be kept out of the septic tank and an outside outlet be provided for these tannery wastes. These recommendations will be carried out by the City Council.

CONTRACTS AWARDED

J. L. Hagen, Welland, Ont., has plumbing and heating contracts for new school in Bridgeburg, Ont.

Kitchener, Ont.—General contract for erection of comfort station and waiting room costing $13,400 for city is awarded to Dunker Bros. Plumbing contract is placed with Herb. Klem, 87 King E.

Moncton, N. B.—Electrical, plumbing and heating contracts for residence costing $8,000 for Frank B. Somers, Highfield St., are awarded to J. W. McCarthy, St. George Street.

Moncton, N. B.—Wm. G. Crowley, St. George St., has electrical and plumbing contracts for 10 residences costing $50,000 for Hillsboro Woodworking Co., Hillsboro.

Montreal, Que.—Max Giroux, 458 LaSalle St., has roofing and plumbing contracts for residence costing $15,000 for E. Dansereau, 2423 Notre Dame St., E.

WESTERN ONTARIO NEWS

John Eggett of Eggett & Co., London, is back at work again after a period of several weeks convalescence following an operation for appendicitis.

G. W. Kennedy, 1073 Richmond street, wants prices on hot air heating, plumbing and electrical work for new $5,500 residence on which work has started.

Contract for alterations in connection with the steam heating system at London postoffice have been awarded to Noble and Rich.

The Council at Ford City, Ont., contemplates the construction of new sewers to cost $100,000. Plans and estimates are to be prepared shortly.

Calcott & Co., of Sarnia, Ont., have been awarded heating contract for the Sarnia Collegiate Institute.

J. R. McAlpine, 889 Queens Avenue, London, Ont., wants prices on hot air heating, plumbing and electrical work for three new dwellings to cost $10,000.

Noble & Rich, London, Ont., have been awarded heating and plumbing contract for the big new hardware store of the Cowan Hardware Co.

T. Rich, of Noble & Rich, London, Ont., has returned after spending a very pleasant holiday in the vicinity of Wiarton, during which he caught some very fine fish.

The funeral took place in London, Ont., on August 9, of Fred Saunders aged 62, for many years proprietor of a plumbing supply house in that city. Later he moved to Detroit where he continued the business. Retiring two years ago he made his home in Toronto and some months ago suffered a paralytic stroke.

Contract for steam heating and plumbing for new $40,000 school at Springfield, Ont., has been awarded to Noble & Rich of London, Ont.

N. Sitter, Thedford, Ont., is calling for tenders for drainage work costing $60,000 until August 20.

Ben Noble of Noble & Rich, London Ont., is spending his holidays at Wiarton.

F. Wilson & Sons, St. Mary's Ont., have been awarded plumbing contract for new $35,000 factory for the Hurlbut Shoe Co. at St. Marys.

J. Hunter, 2 Erie ave., wants prices on hot air heating, plumbing and electrical work for new $5,000 residence at London, Ont.

Ratepayers at Port Dover, Ont., will vote on August 7 on a bylaw to raise $65,000 for installing a new waterworks system.

Owing to flooding of cellars in the down town district at London, Ont., plans and estimates for a storm sewer system on King street to cost $250,000 will be prepared by City Engineer H. A. Brazier.

Construction of a central heating system to cost about $25,000 has been commenced by the St. Peter's parish officials. Plans and estimates will be secured. Bishop Fallon, London, Ont., head of diocese.

Plans for an eight suite apartment to be heated by hot water radiators with gas burners under each, are being prepared by Architect W. G. Murray, Dominion Savings Building, London. Owner Chas. Brennan, 28 Picton St.

Williams and Roberts have been awarded plumbing contract for new $4,000 residence at London, Ont., for F. H. Goring.

Harry Wooster, 23 Byron ave., London, has been awarded heating and plumbing work for new $5,000 residence being built by Evans Bros.

H. M. Douglass, 206 Central ave., London, Ont., wants prices on hot air heating, plumbing and electrical work for two new residences costing $7,000.

Plans and estimates for a new parsonage to cost $7,000 are to be secured by Methodist Congregation at St. Thomas, Rev. Hicks, 139 Wellington St., pastor. Prices wanted on heating, plumbing and electrical equipment.

HARDWAREMAN APPOINTED JUDGE OF JUVENILE COURT

W. A. Finch, 119½ King St., London, Ont., is preparing plans for new $7,000 residence and wants prices on heating, plumbing and electrical equipment.

J. W. McLaughlin, 629 Queens Ave., London, Ont., is preparing plans for new garage and auto repair shop to cost $25,000 and wants prices on heating, plumbing and electrical equipment.

Architect W. G. Murray, Dominion Savings Building, London, is preparing plans for two residences to cost $12,000 for A. E. Wells, 516 Nelson St. Prices wanted on hot air heating, plumbing and electrical work.

Thos. Dickson, 2 Waverley Place, London, Ont., wants prices on hot air heating, plumbing and electrical work for new $4,500 residence.

M. McEachern, 5 Picton Apartments, London, has commenced excavation for $7,000 residence and wants prices on heating, plumbing and electrical work.

A. E. Gibbons, London, Ont., has been awarded hot water heating and plumbing contracts for new $15,000 business block for B. Shapiro.

Erection of a new public library to cost $7,000 is contemplated by the council at Glencoe, Ont. Chas. George, Town Clerk. Prices wanted for hot air heating, plumbing and electrical equipment.

METER WATER TO BUSINESS PLANTS

Montreal.—Water-meters will be installed in a great many additional plants and manufacturing establishments.

The new regulation makes these necessary in a variety of places heretofore using water on rates based on the rental or a flat annual rate.

The new levy will be at the rate of $1.15 per 1,000 cubic feet.

Establishments affected by the new ruling are the following: Bakeries, bottle-washing plants, whether the work be done by hand or machine; portable steam boilers, all steam engines, plants using water for refrigerating purposes or for running machinery destined to this end or for purifying or cooling air, establishments using jet pumps, ice-making establishments, places using hydraulic motors or any machinery driven by water, places where water is allowed to run continuously, plating and tempering plants, places using water for photography where ever any other industry is carried on, circuses, shows, exhibitions and other amusements drawing water from city hydrants or fountains, gardens where water is used, users of water in coal yards to prevent fire in coal piles, or for any other purposes.

LONDON MUST REPLACE SEWAGE PLANT

London, Ont., it is announced, has been advised by the Ontario Board of Health that the present sewage disposal plant must be replaced, this present plant, according to authorities of the department, constituting a public menace to the health of the community. The estimated cost of a plant to serve this district is $400,000.

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights —Keep the Entire Series Where It May Be Referred to And Studied

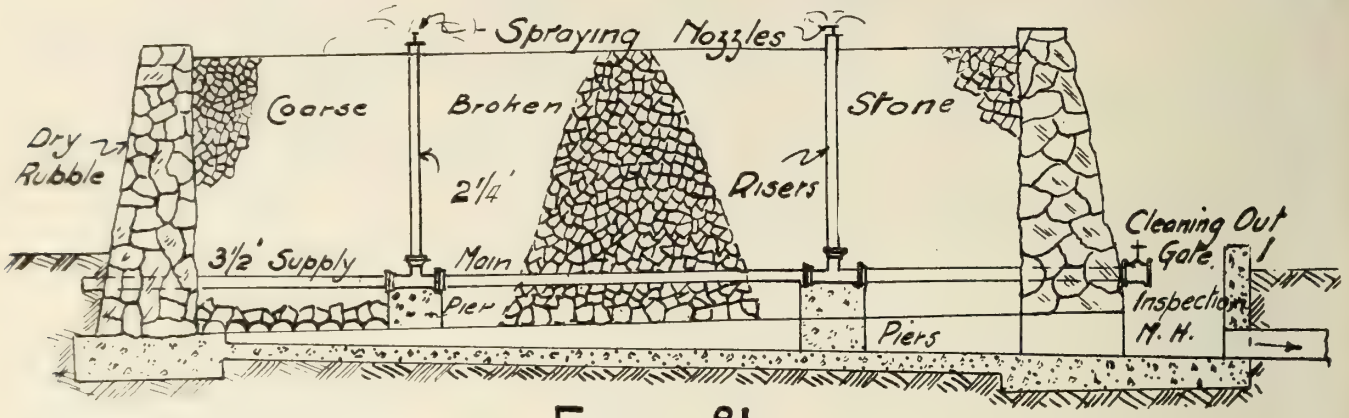


FIG 81.

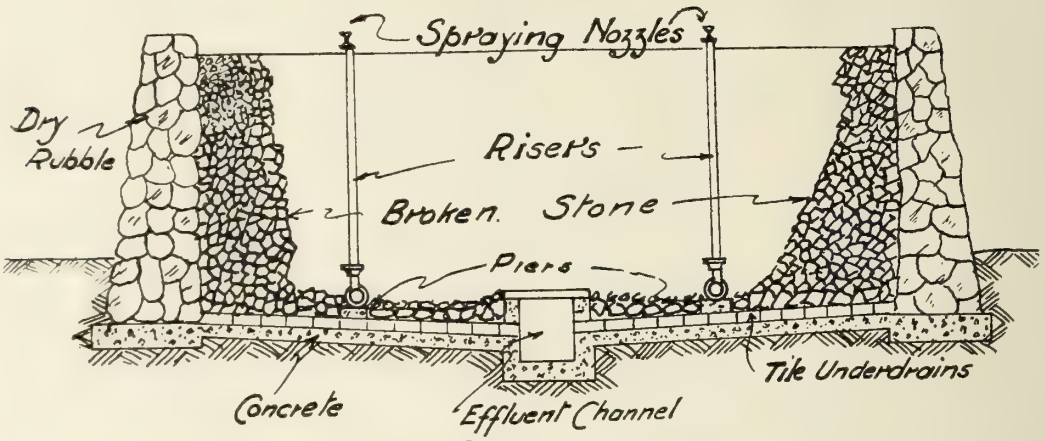


FIG 82.

(Continued from last issue)

THESE distributors are made in sections and supported by the supply channels and cover the whole area of the filter bed. In cold climates, owing to the difference in temperatures raising the filtering media, it is essential that both the supply channel and distributor should be self-supported and not rest on the filtrant, otherwise the line and lead of same would not be uniform or in keeping for proper distribution. Fig 30 shows a sketch of this class of distributor.

Automatic Rotary Distributor

This class of distributor has been installed with excellent results on circular filter beds. It consists of four arms well stayed to a central supply column or pillar and requires at least 6 to 12 inch head to operate.

The one difficulty in designing distributors was the necessary power to produce motion at little cost and this is accomplished in this class of distributor by placing the bearing on ball bearings minimizing the frictional resistance and, by perforations on one side of the radiating distributing arms, the reaction of escaping jets causes the pipes to revolve around the central axis and discharge sewage. The outer end of the arms traverses a much greater area than the one connected to the centre, therefore the number and size of perforations should be mathematically worked out so as to equalize the quantity of sewage distributed over the same area throughout the bed.

SEWERS BACKING UP IN LONDON

London, Ont.—Backing up of sewage and storm water in the cellars of many business places has brought about a situation here which will probably mean the expenditure of at least $250,000 next spring for additional sewers.

In the meantime the city may have to face lawsuits for damages to merchandise. Whether the firms who have sustained heavy losses can collect or not remains to be seen.

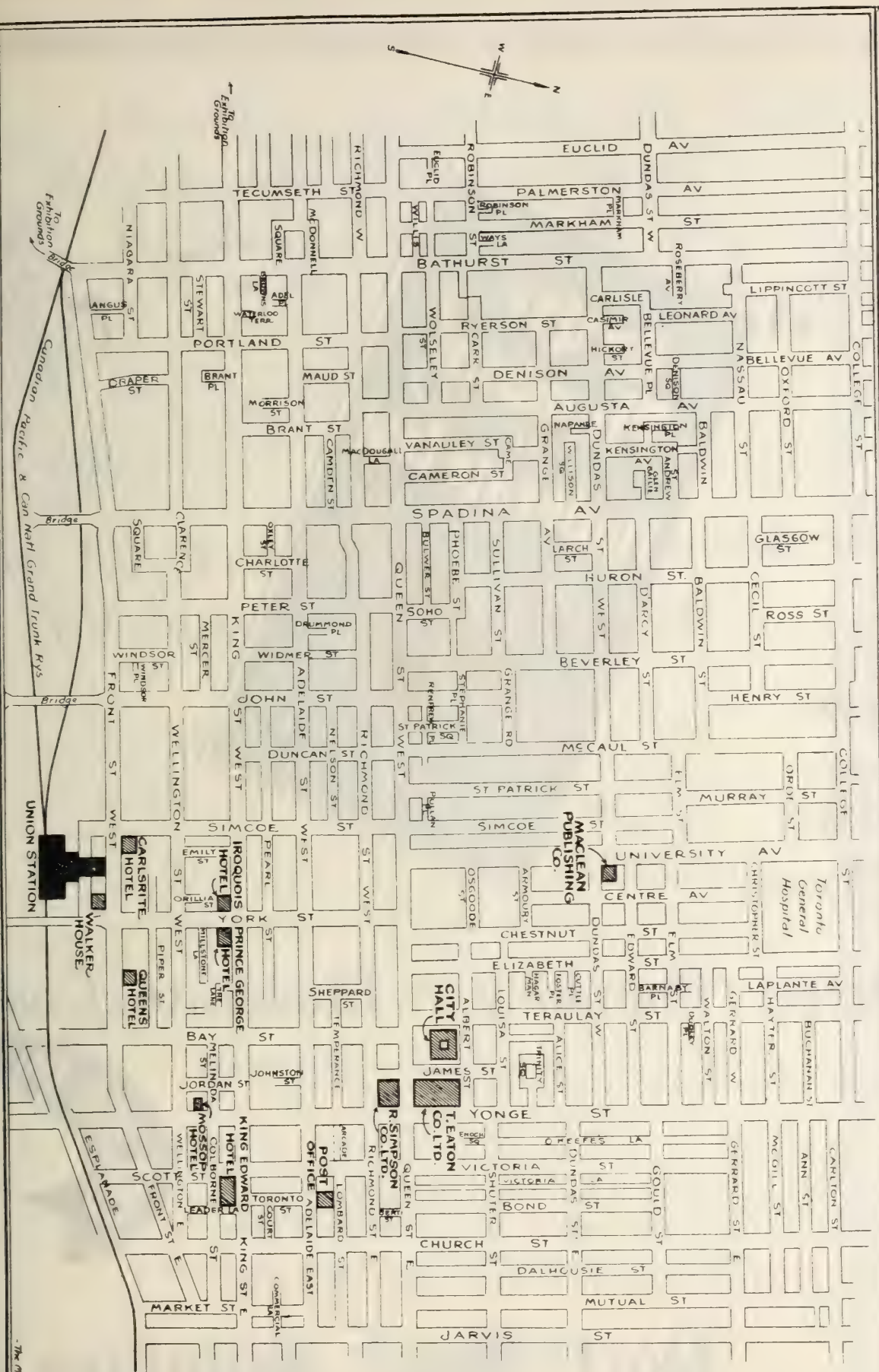
City Engineer, Harry Brazier will investigate the trouble immediately and prepare a report. There is little doubt it is believed that at least one new and larger storm sewer will be necessary. The present outlet in the district is a 36-inch tile and was laid in 1854, and it is claimed that it is now impossible for it to handle the rush of water in it when a big storm is on.

Help!—"Does your fiancee know much about automobiles?"

"Heavens, no; she asked me if I cooled my car by stripping the gears."

Handy Map of Toronto for Exhibition Visitors

(The downtown section of Toronto showing approaches to the Exhibition Grounds and other places of interest—TEAR IT OUT AND USE IT WHEN YOU COME TO TORONTO.)



A Few Pages From Port Hope's Powerful New Booklet.

"Better Plumbing at Moderate Cost"

"Better Plumbing at Moderate Cost" is the title of this new booklet and is designed with but one object in view—to help you secure more business.

The artists, copywriters and advertising men who planned "Better Plumbing at Moderate Cost" are among the finest of their kind in Canada.

We called them together and said—"We want a booklet that Canadian Sanitary Engineers will distribute to their prospects with a feeling of pride in the knowledge that they are giving something that will not only reflect in a big way their good taste but will actually create a desire in their prospects' minds for better sanitation facilities. That's what we wish this booklet to accomplish. Spare no expense to give your best."

"Better Plumbing at Moderate Cost" is the result. You'll like it—your prospects will like it and all will benefit from the good that will accrue from its distribution.

CUT THIS OUT

Port Hope Sanitary M

Vancouver Office: 325 HOWE ST.

Factories: PORT HOPE, ONTARIO

Head Office: 1204 ROYAL BANK BLDG.

Better Plumbing at Moderate Cost" Will Increase Your Sales

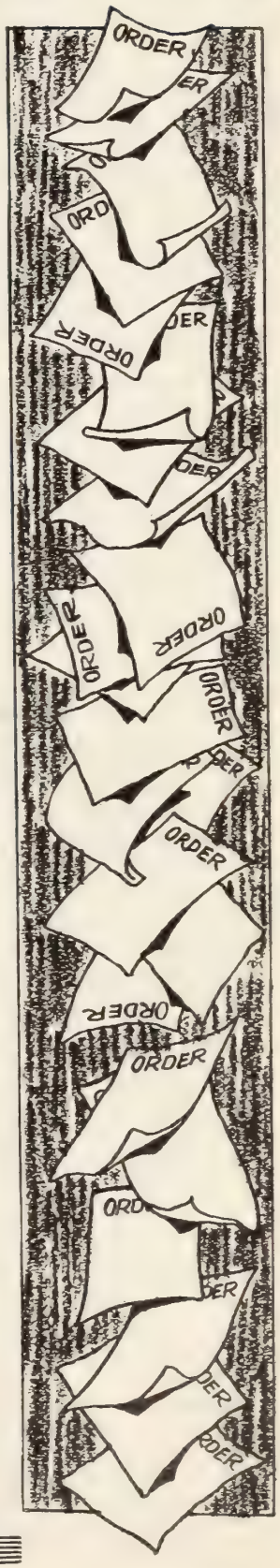
This booklet will carry an instant appeal to every householder. It tells of the necessity of equipping the home with up-to-date plumbing fixtures and the attractive illustrations suggest many ways in which the bath room may be modernized.

"Better Plumbing at Moderate Cost" should be placed in every home. Every home owner will appreciate the valuable suggestions which it contains and your name which you can have printed on the cover at a small cost, will be impressed upon the public in a most favorable light that will lead to increased business.

You can put them to work today.

Mail this booklet to your prospects—carry a supply in your pocket and leave one in every home you visit.

It means more business for you.



Send for Your Supply of "Better Plumbing at Moderate Cost" TO-DAY—NOW

There are a limited number of these booklets for distribution at the present time and it will be several months before a further supply will be available.

In order to ensure that you get your supply and get them working for you, it will be necessary to order them immediately.

Just tear off the bottom half of this page containing the coupon, and mail.

Note:—Because we want to spread the available supply around as far as possible, we ask your co-operation by ordering just as many as you think you will use.

Don't ask for 500 if 250 will fill your requirements. Somebody else will have to go short if you do.

Port Hope Sanitary Mfg. Co., Ltd.,
Royal Bank Bldg.,
Toronto.

Please send me by return mail ..... copies of "Better Plumbing at Moderate Cost."

It is understood that these are absolutely free and place me under no obligation.

Firm Name ... ...

Address, Street ... ...

City or Town ... ...

Signature of Sender ... ...

Company, Limited

Winnipeg Office:
405 TRIBUNE BLDG.

Montreal Office:
301 SOUTHAM BLDG.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

Markets at a Glance

PRICES on sanitary and heating materials continue to fluctuate in both directions. The majority of current developments, however, are in the nature of advances, higher levels now being in effect on soil pipe and fittings, lead sheets, and spelter, tin, lead and ingot copper. These advanced prices on metals supply the upward swing of the primary markets, while under the continued pressure of basic conditions in the steel industry boiler tubes have developed signs of recovery with increased quotations outlined in the near future. Some revisions are announced on Canada plate prices, while cement also shows a minor reduction on car load lots only.

The steel industry is feeling the greater pressure of strike conditions at producing centres, with this factor being reflected on many finished products. The scarcity and higher prices on basic elements has developed a shortage of wrought piping in smaller sizes at some centres, while rising costs of pig iron and coke result in adding further strength to radiators and boiler prices. Galvanized sheets are still on a very firm basis, and it is expected that bar iron will likely firm up to higher levels under the existing conditions, the trend of prices still being in an upward direction. The steel industry awaits developments in the strike situation, but meanwhile continues to function in spite of these handicaps. While a new impulse is needed to awaken buying interest during the quiet summer period, chief attention is at present centred on the problem of when a settlement in coal and rail labor troubles will be effected.

Construction activity reflects on numerous plumbing and steam-fitting materials including eavestrough and conductor pipe, brass compression goods, closet outfits and enameled ware products, pipe fittings, cement, metal lath, corrugated sheets, soil pipe and similar goods. Current business in many quarters is described as very good. Under the stimulus of construction work, there is undoubtedly a fairly heavy volume of current trade and someone is getting the business.

Montreal Markets

MONTREAL, August 13.—There is again an upward trend to prices of sanitary and heating goods, all revisions being made in this direction with two minor exceptions. The feature change is announced on soil pipe and fittings, these goods recording a substantial price increase through a revision in discounts. The upward swing is still evident in galvanized sheets, quotations generally being further advanced twenty-five cents per hundred lbs. on all gauges of both Queen's Head and other brands. Lead sheets are advanced one-half cent per pound, the improved position of metals on primary markets contributing a strengthening tendency to these goods. There is a stronger tone in the raw cotton markets but cotton waste prices are unchanged. A slight reduction is made in tin plate quotations in full boxes, and American roofing nails one dollar per hundred lbs. lower. The coal and rail strike situation becomes a more and more important factor in the steel industry and although chances of an early settlement seem a little more hopeful, little relief in the steel industry is anticipated for some weeks owing to the necessary delays which would be involved before production could be resumed on its former footing. A strong market therefore is expected on most iron and steel products. There is practically no change in enameled ware products and while increased costs of production must be taken into consideration, distributors anticipate little or no change in prices. The scrap metal markets are somewhat quieter and ingot metals are reported a little easier.

LEAD SHEETS ONE-HALF CENT PER POUND HIGHER

Montreal

The continued stronger tendency in metals on primary markets still reflects on lead and zinc products and lead sheets have firmed in price, all weights being one-half cent per pound higher. Other lines such as traps and bends, lead pipe and solders are unchanged, but a continuation of the firmer tone in primary circles may bring these products to higher levels in the near future. Revised quotations are as follows:

LEAD AND ZINC PRODUCTS—	
Lead pipe, per 100 lbs. up to 2"	13 00
Do., 2" to 8"	14 00
Do., 8" and over	15 00
Lead waste, per 100 lbs.	14 00
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	15%
Lead wool, lb.	0 13½
Lead sheets, 2½ lbs., sq. ft. lb.	0 10½
Lead sheets, 3 3½ lbs., sq. ft. lb.	0 10¼
Do., 4 to 8 lbs., sq. ft., lb.	0 09½
Cut sheets, ¼c. lb. extra and cut sheets to size, ¾c. lb. extra.	
Solder, guaranteed, lb.	0 26½
Do., strictly, lb.	0 24½
Do., commercial, lb.	0 21½
Do., wiping, lb.	0 22½
Do., wire, lb.	0 35
Zinc, sheets, casks	0 11
Do., broken lots	0 11½

ADVANCED QUOTATIONS ON SOIL PIPE AND FITTINGS

Montreal

Advanced prices are recorded on both soil pipe and fittings, the extent of the increase varying on the different sizes. Two, three, four, five and six inch pipe is now quoted at less 35 per cent., and eight inch at net. Two to six inch fittings are now less 45 per cent., while the eight inch fittings are also net.

In announcing this revision manufacturers state that in line with other iron and steel products, production costs have increased, the recent higher levels of pig iron being one of the chief factors to be considered. While the market tendency on these products has been upward for some time past, no definite decision to advance prices was reached until the coal strike situation reached a more serious stage. Trade in both pipe fittings is

described as quite satisfactory for this season of the year, and following are revised discounts:

SOIL PIPE—

2 and 3 inch	35%
4 inch	35%
5 and 6 inch	35%
8 inch	net
Fittings—	
2 to 6 inch	45 per cent.
8 inch	net

TROUGH AND PIPE STILL ON ACTIVE MOVEMENT

Montreal

A fairly active movement and the continued firmer tendency in flat galvanized sheets still contribute a strong undertone in eavestrough and conductor pipe. Although at this season of the year sales usually show a slackening, especially in rural districts when the harvesting season is in full swing, business in these products this year has been well maintained. Quotations are firm at following discounts:

EAVESTROUGH:

O. G. round and half round, per 100 ft. 8 in., $16.90; 10 in., $18.70; 12 in., $22.20; 15 in., $29.80; 18 in., $37.80.

O.G. Square bead, per 100 ft.: 8 in., $15.90; 10 in., $17.70; 12 in., $21.20; 15 in., $28.80; 18 in., $36.80.

Discount 70|10 per cent.

CONDUCTOR PIPE—Round, Plain and Corrugated. per 100 ft.; 2 in., $18.40; 3 in., $22.30; 4 in., $29.60; 5 in, $40.00; 6 in, $49.00; 6 in., $49.00.

Discount 70|10 per cent.

CONDUCTOR ELBOWS—

Plain or corrugated, price per doz.

2 in., $5.25; 3 in., $6.00; 4 in., $10.50; 5 in., $24.00; 6 in., $29.00.

Discount 60 per cent.

FIRMER TONE IN COTTON WASTES BUT PRICES UNCHANGED

Montreal.

The firming tendency in cotton goods generally is said to affect cotton waste to an extent, but the strength is not so apparent as in many other lines. Having a more or less direct bearing on domestic markets is the importation of cotton waste from England. Dealing with this it was pointed out to Sanitary Engineer that imports from overseas have grown considerably during the past year. English manufacturers bring in the raw cotton from the United States and export the finished product to Canada and other countries. It is for this reason that fluctuations in the southern markets do not directly reflect on domestic markets as readily on wastes as on other lines.

COTTON WASTE—Cream polishing, 18c. per lb.

White—XXX extra, 16c.; XX grand, 15c., XLCR, 14c.; X Empire, 13c.; X press, 11½c.

Colored—Fancy, 13½c; Lion, 12c; Popular, 9c; Keen, 7¼c.

Wool Packing—Arrow, 24c.; Axle, 20c.; Anvil, 16c.

Dominion Wipers—White cotton, 20c; colored cotton, 14c.

STEEL INDUSTRY FEELS GREATER PRESSURE OF COAL STRIKE

Montreal

Current quotations on bar iron and steel products remain unchanged at $3.15 base, but these prices are very firm owing to disturbing factors in the industry. Production difficulties which become more pronounced from week to week in Southern centres, and gradually more apparent with domestic mills, are still occupying the minds of those concerned. Reports from the U. S. mills this week indicate that furnaces in all districts are being banked and a further curtailment of steel operations because of coal shortage seems certain. Already crippled in their production, steel men declare the situation grows more serious from day to day, and adding to the trouble is the possibility of widespread unemployment of steel workers unless something is done to get coal and coke to the mills.

Local mills state that there is little change in the situation insofar as they are concerned. Coal stocks are becoming less, but there is hope of replenishment from the Welsh coal fields in the near future. A certain amount of this coal has already reached this port, and extensive importation is expected in the following weeks. Present prices are the following:

Common bar iron, 100 lbs.	3 15
Refined iron	4 65
Irish finish machinery steel	3 20
Mild steel	3 15
Single reeled machinery steel	5 25
Band steel	3 50
Spring steel	4 75
Sleighshoe steel	3 15
Tire steel	3 35
Harrow tooth steel	3 30
Toe caulk steel	4 05
Mining tool steel, per lb.	0 20½
Black Diamond tool and cast steel, per lb.	0 20½

NOTE—Refined iron is approximately $1.50 per 100 lbs. over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs. extra.

SLIGHT REVISION MADE IN TIN PLATE PRICES

Montreal

A slight revision is made in tin-plate quotations, full boxes being reduced fifty cents per box. Recent shipments of this product have been received from overseas and importers state that the present change is merely an adjustment of prices as the undertone of the market is quite firm. With regard to imports of tin-plate from the United States a local distributor states that in all probability a much firmer tendency will be in evidence during the fall months unless an early settlement is reached in the coal strike. It was pointed out that much of this product will be required by can manufacturers for the pack of fruit and vegetables and for this reason tin-plate would be placed on the priority list. Mills would be forced to ship almost any size sheets for this business as present stocks are low with little hope of further production. Following are prevailing prices:

TIN PLATE—Coke	
20 x 28 x 100 lb. basis	12 50
20 x 28 IC, 112s	13 00
20 x 28 IX, 112s	15 00
20 x 28 IXX, 56s.	9 00
20 x 28 IXXX, 56s.	9 75
TERNE— PLATE—	
20 x 28 IC, 112s.	14 00
CANADA PLATE—	
Dull, 52s	5 00
Dull, 60s	5 10
Blued 52s	5 25
Blued 60s	5 35
Welsh, polished, 52s	7 00
Welsh, polished, 60s	7 25
Galvanized, 52s.	7 25
Galvanized, 60s	7 75

FAIR DEMAND CONTINUES FOR RANGE BOILERS

Montreal

Current trade in range boilers is said to continue fair, demand for these products being fairly well governed by activity in building circles. Later summer and fall usually bring a bigger demand for range boilers and this, coupled with continued new building, promises well for future trade. Quotations are unchanged with a certain firmness in the tone of the market owing to the stronger tendency in practically all galvanized sheet products. Following are list prices and discounts::

RANGE BOILERS:—

5	Gallon	$13.50
12	"	14.00
18	"	15.00
25	"	16.50
30	"	17.50
35	"	20.50
40	"	22.75
52	"	38.00
66	"	60.75
82	"	74.00
100	"	103.00
120	"	117.00
144	"	164.00
168	"	187.00
192	"	210.00

Discounts, Standard weight, 50 per cent.
Extra Heavy, 40 per cent.

RADIATORS AND BOILERS ON FIRMER MARKET TREND

Montreal.

Radiators and boilers are still selling on a quite active market, the movement said to be seasonal and stimulated by the continuation of fairly extensive building operations. The number of dwelling houses under construction, and prospects of further buildings during the later summer and fall months, promises well for the sale of these products. The upward trend in the steel industry because of production and transportation difficulties, and higher cost of raw materials, reflects even a firmer undertone in goods of this class, and manufacturers express hope that an improvement will develop from negotiations now under way. Following are list prices and discounts remaining in effect:

RADIATORS AND BOILERS—

Radiator list prices are for 1, 2, 3, 4 and 5,-column radiators per square foot.

45 in. to 38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in, $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60. Discount 59% for hot water and 60 per cent. for steam.

Wall Radiators—5 ft. $1.15; 6 ft., $1.10; 7 ft., $1.05; 9 ft., $1.05; 12 ft. $1.05. Discount 56%

Boilers—Round hot water boilers, low base only (high base discontinued); sizes from 0 to 10, 64% off list.

Square or sectional hot water or steam boilers, 15-in., 20 per cent.

For Ontario Government trimmings add 5 per cent.

Square or sectional steam boilerfs, 19 in. to 36 in., 20 per cent.

Square or sectional steam boilers, 19 in. to 36 in., 20 per cent. Ontario Govt. trimmings, 10 per cent. discount.

Round steam boilers, standard trimmings, 28 per cent. off. Ontario Government trimmings, 25 per cent.

All prices f.o.b. Toronto, Montreal, Guelph, Hamilton, St. Catharines or Brantford.

FURTHER ADVANCE IN QUOTATIONS ON GALVANIZED SHEETS

Montreal.

Galvanized sheets continue on an upward trend, quotations being further advanced twenty-five cents per 100 lbs. on all gauges. This revision is announced by practically all distributors and the range in local prices is now considerably less. The English market for these products recently advanced and importers increased their price levels accord-

ingly. It is stated that production costs have increased, one of the chief reasons being higher ruling prices of coal because of exports to this side.

An early improvement in the situation in the South is anticipated, but it is considered doubtful whether this will materially affect the local market while the more active demand for sheets is in evidence. Deliveries have been so far delayed that immediate increased production would still mean some time before shipments could reach this market in any quantity. The movement of galvanized sheets is a little slower, and following are revised quotations:

BLACK SHEETS—		
10 gauge, base	4 00	4 50
12 gauge	4 10	4 60
14 gauge	4 20	4 70
16 gauge	4 30	4 80
18-20 gauge	4 55	5 05
22-24 gauge	4 60	5 20
26 gauge	4 65	5 25
28 gauge	4 75	5 35
Sheets, 36" wide, 10c. per 100 lbs. extra.		
GALVANIZED SHEETS—		
Queen's Head—		
28 gauge	7 25	7 50
26 gauge	7 00	7 25
24 gauge	6 40	6 65
22 gauge	6 05	6 30
18-20 gauge	5 35	5 60
Other Brands—		
28 gauge	7 00	7 25
28 U. S. gauge	6 60	6 85
26 U. S. gauge	6 30	6 55
24 gauge	6 15	6 40
22 gauge	6 15	6 25
16 gauge	5 85	6 10

Theses prices are for full bundles, an extra charge of from 25c to 35c is made for broken lots. Extra for sheets 3 ft. wide, 28 gauge and 10¾ oz., 20 cts. per 100 lbs. Further extra for sheets 4 ft. wide, according to gauge.

NO CHANGES IN PRICES ON CLOSET OUTFITS

Montreal

Although slight reductions have been made in certain closet combinations on other domestic markets, distributors state that quotations locally remain unchanged. It is pointed out, however, as in other lines of enameled ware, that the firmer tendency in primary markets because of higher production costs is not as pronounced on the finished products as would naturally be expected, and the undertone is described as only steadier than earlier in the season. Nominal price levels are as follows:

CLOSET COMBINATIONS—	each
Closet, standard low down outfit	$25 00
Do., post hinge seat	26 00
Do., oak vitro, back strip seat	27 75
Do., oak vitro, post hinge seat	28 40
Do., china tank and back strip seat	28 50
Do., china tank post hinge seat	29 50
Do., vitro white with post hinge seat	30 75
Reversible trap bowl, less spud	11 25
Wash down bowl, less spud	10 00
Richelieu bowl	9 00
Siphon jet bowl	16 25
Extra for spud	0 60
Add for ⅜ in. valve on supply pipe	1 25
Add for bar hinge	No extra
Deduct for supply pipe	0 80
Deduct for floor hinge	0 60
Wood strip seat and cover	3 05
Post hinge seat and cover	4 25
Oak or oak vitro tank, with fittings, less seat	14 25
White vitro, vitreous china or enameled iron tank, with fittings, flush elbow and supplies, less seat	18 50

COMPRESSION GOODS ON STEADIER PRICE BASIS

Current quotations on the various lines of valves and bibbs remain at unchanged discounts with the undertone of the market still described as fairly firm owing to the steady tone of copper on primary metal markets. It is also noted that quotations on the finished products are on a steadier basis during recent weeks. A seasonable volume of business is being done, and future trade may have a deciding effect on the trend of these goods in later weeks, according to one manufacturer. The firmer tendency owing to higher production costs may be offset to an extent when business becomes better. Prevailing discounts are the following:

Compression work, standard	45%
Fuller work, standard	30%
Quick opening compression bibbs	43%
Bath cocks, quick opening	41%
Bath cocks, compression	41%
Basin cocks, quick opening	46%
Flatway stop and waste cocks, standard	54%
Roundway stop and waste cocks, st'nd'rd	46%
Brass steam cocks, standard, ¼ in.	50%
Radiator valves, standard	58%
Do., removable discs	58%
Globe, angle and check valves, standard	25%
Gate or straightway	25%
Emco globe valves	33%
Emco check valves	33%
Jenkins globe, angle, check and swing check	19%
Jenkins gate or straightway	25%
Jenkins iron body, globe and angle	15%
Jenkins iron body, gate	33%
N.P. "P" and "S" traps	40%

UNSETTLED ENAMELED WARE MARKET MAY AFFECT PRICE TREND

Montreal

There is still a brisk seasonal trade in enameled ware products, with prospects of fair business continuing for requirements of building operations in the later months of summer and fall. The market situation is reported as firmer because of the rising costs of producing, the coal and rail strike conditions having a more direct bearing on the situation as weeks pass. Distributors, however, anticipate little change in prices in the immediate future at least. They point out that unsettled conditions in this market in the earlier months, although improved somewhat at present, should have a deciding effect on the future price trend.

ENAMELED WARE—			
Sinks, roll rim—			
18 x 30			$23 00
Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$ 7 50	$ 7 40	$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in wide			51 40
Bath tubs, 5½ feet			57 10
Lavatories—			
17x19 in. Apron F139 or P4045			15 30
18x24 in. Apron F154 or P3845 or P3847			23 60
18x21 in. Apron F169 or P4205			17 60
17x19 in. Roll rim. F241 or P4345			12 60

Less 33 1-3 per cent.

FIRM SITUATION CONTINUES IN WROUGHT PIPE MARKET

Montreal.

Manufacturers of wrought piping state that notwithstanding the firm tone in the steel industry generally, which is further strengthened by production difficulties through the coal and rail strike situation, no revision in prices is yet in sight. The undertone of this market is undoubtedly strong, but as pointed out by one manufacturer the coal situation has not yet seriously affected production, and the attitude of waiting for further developments is taken. There is every reason to hope for an early settlement in the strike conditions in the south, and this will undoubtedly determine the trend of the market for future. Reports from American mills at present indicate that while demand for wrought pipe is not as active as in previous months, producers are still well supplied with orders and with a possibility of a curtailment in production, if an agreement is not reached, there is a stiffening tendency in the market. Domestic quotations are still contained in list No. 54.

SLIGHTLY FIRMER TONE IN PIPE FITTINGS

Montreal.

Quotations on pipe fittings are unchanged with the undertone of the market said to be a little firmer, the stiffening tendency in the steel industry generally being reflected on these products to an extent. Current demand is quite seasonable, supplies being required for construction work. Following are present discounts:

PIPE FITTINGS—	
Cast iron fitting	30%
Plugs, cast iron	30%
Do., solid	30%
Do., countersunk	30%
Bushings, cast	32%
Do., malleable	32%
Unions	47%
Flanged unions	30%
Flanged fittings	30%
Dart unions, black, 33	1-3%
Dart unions, galv.	13%
Nipples, 1-8 to 4", close and short	60%
Do., long	65%
Do., 4½ to 8", close and short	50%
Do., long	55%
Couplings, 4" and under	30%
Do., 4½" and larger	10%

Malleable Fittings—

Piece list effective June 1st, 1922. Discount 70-5 per cent.

ASBESTOS MARKET RECORDS A STEADIER SITUATION

Montreal

No change is made in quotations on the various asbestos products, and the market is reported as steady to firm. The call for these lines continues in proportion to the brisk seasonal demand for building materials generally, and this factor also assists in maintaining a firmer tone. Discount levels are as follows:

ASBESTOS PRODUCTS—	
	Off list prices
2 ply pipe covering	67½%
3 ply pipe covering	65%
4 ply pipe covering	60%
85% magnesia	45%
	Per bag
Boiler covering	1 50
	Per 100 lbs.
Asbestos sheathing	7 50

QUIETER PERIOD RECORDED IN SCRAP METALS

Montreal.

Little change is recorded in scrap metals, a quieter period now becoming more evident from week to week. Although business among scrap dealers usually shows a slackening during midsummer months, it has been fairly well maintained up until the beginning of the present month. Quotations on the various lines are nominally unchanged, with the tone of the market continuing fairly firm nothwithstanding reduced activity. While it is stated by dealers that the effect of the coal strike has not been felt to any extent in the movement of scrap metals, it is recognized that this con-

dition is assisting towards a stronger attitude in the market. Following are dealer's average buying prices:

Automobile Tires	0 50
Rubber Shoes	0 02½
Yellow brass	0 05 to 0 06
Red brass	0 08¾
Light brass	0 04
Scrap zinc	0 03½
Lead, heavy	0 04½
Lead, tea	0 03
Light copper	0 08½ to 0 09
Heavy copper	0 11
Wrought iron, R. Rd., No. 1 per gr. ton.	10 00
Malleable scrap (ton)	9 00 10 00
Pipe scrap (ton)	
Heavy melting steel	9 50 to 10 00
No. 2 busheling	3 00
Boiler plate	8 00 9 00
No. 1 machinery cast	20 00 to 21 00

SLIGHTLY EASIER TREND IN INGOT METAL MARKETS

Montreal.

The ingot metal markets have not been quite as firm during the past week although the declines in prices are not very great. After the sharp advance in certain metals a slight re-action is not surprising especially in view of unsettled conditions prevailing in the United States and the uncertain state of finance in Germany.

TIN.—London has declined slightly this week probably owing to lack of support from this side as it is considered difficult to see how consumption can increase with labour conditions so unsettled. The undertone of the market however is described as good, and higher prices not unlikely later on. The local market is quiet at 36 cents.

COPPER.—There is nothing new in this metal, as it is not affected by the coal strike to the same extent as other lines. Domestic demand continues good and supplies seem sufficient for the present. Electro is still quoted at 17½ cts.

SPELTER.—The immediate demand for spelter having been separately satisfied, prices are slightly lower, but it is not thought that the decline will extend very far. It is considered probable that England will have to look to this side, which will mean lower prices. Local quotation is unchanged at 8¾ cents.

LEAD.—This market remains steady without any change in prices, and the situation is described as quieter. Supplies and demand are said to be fairly well balanced at present, and no immediate change is looked for. Lead is quoted at 7 cents.

ANTIMONY.—This metal remains quiet with practically no change in the undertone of the market. Chinese is still quoted at 6½ cts., high grade English at 7½ cts.

ALUMINUM.—Aluminum still fails to show much action and no change is recorded in the market tendency. Quotation remains at 24 cents.

Toronto Markets

TORONTO, August 14.—A number of important price developments again attract specific attention to the market for plumbing and steam-fitting materials. Quotations on soil pipe and fittings are now advanced, this tendency having been outlined in recent reports. A slight revision is also noted on Canada plate prices, while spelter, lead, tin and copper supply higher levels on the ingot metal markets, thus reflecting the upward swing of the pendulum on primary centres. Lead sheets have also firmed up one half cent per pound as a result of virgin metal conditions, while boiler tube quotations have developed signs of recovery with some advances in the near future considered quite feasible under prevailing tendencies. Cement prices show a slight reduction in car load lots only. Improved activity is recorded in many other sanitary and heating supplies, the requirements of construction work providing a brisk seasonal call for brass compression goods, eavestrough and conductor pipe, closet outfits and enameled ware products, pipe fittings and sheets.

HIGHER QUOTATIONS ON SOIL PIPE AND FITTINGS

Toronto.

As pointed out in recent issues of Sanitary Engineer, a decided upward tendency has recently been apparent in the market for soil pipe and fittings. This change has now developed in the nature of revised discounts, thus placing quotations on a higher level on sizes 2 to 6 inches, both pipe and fittings in medium and extra heavy. The revised discount on pipe is 33 1-3 per cent., while all fittings with the exception of 8-inch, are now on an even basis of 45 per cent. off list. Eight inch pipe and fittings remain at net list.

In discussing the reasons for this revision with manufacturers, Sanitary Engineer was informed that higher production costs were the principal factor, a tendency outlined in a recent issue. It was pointed out that pig iron has rapidly advanced in price, while coke is also higher. A shortage of raw material in this class is now commencing to become apparent due to the poor transportation facilities and delayed deliveries caused by the rail strike in southern centres. The demand for soil pipe and fittings is stated to be keeping up well and the season's volume is on a very satisfactory basis, a condition which has been materially assisted by the activity in building circles. New discounts follow, these applying to the standard list of October 1, 1907:

SOIL PIPE—

2 inch	Less 33 1-3%
3 inch	Less 33 1-3%
4 inch	Less 33 1-3%
5 and 6 inch	Less 33 1-3%
8 inch	net

FITTINGS

2 to 6 inch	Less 45 per cent.
8 inch	net

CEMENT FIVE CENTS LOWER IN CAR LOTS

Toronto.

A slight reduction in cement prices is now in effect locally, the extent of the decline being five cents per barrel in car load lots. This change brings the current price to $3.70. No recession has been announced on less car lots, the previous levels remaining unchanged. Current trade is described as fair for this season of the year, purchases being mainly in smaller quantities. Following are local quotations:

CEMENT—

	Toronto.
Car load lots.	
Per barrel, delivered	3 70
Less car lots.	
Per barrel, f.o.b. yard	4 40
Per barrel, delivered	4 60

Single bags, $1.15 each; 4 bags to barrel.
Extra charge of $1.50 per load on less than 24 bag lots.
Rebate of 20 cents for empty sacks.

NEW CANADA PLATE PRICES FOR FALL

Toronto.

Some slight changes have been announced in quotations on Canada plates. This revision places these products on a more uniform level for the new season's business, a steady market is recorded. Bookings for fall delivery are described as coming along nicely and a brisk demand is generally anticipated, the canning industry being especially active. Following are current local quotations:

PLATES, CANADA—	Per box
Ordinary, 52 sheets	4 90
Dull, 60 sheets	5 00
Blued and oiled, boxes 52's	5 20
Do., boxes, 60's	5 30
PLATES, COKE TIN—	
IC, 20 x 28, 112 sheets	12 50
IX, 20 x 28, 112 sheets	16 00
IX, 20 x 28, 56 sheets	8 50
PLATES, CHARCOAL TIN—	
IX, 20 x 28, 112 sheets	10 00
IXX, 20 x 28, 56 sheets	12 00
PLATES, TERNE—	
IC, 14 x 20, 112 sheets	12 00

UPWARD TENDENCY IN BOILER TUBE PRICES

Toronto

The latent strength of the steel industry is now being reflected in boiler tubes and as pointed out in recent market reports, prices on these products are on a firmer basis. Boiler tube quotations have been advanced on primary centres to the extent of approximately five per cent., this change affecting both seamless and lapweld. It is expected that this revision will be reflected on domestic levels in the near future, but up to the present, local warehouses have not followed this advance, and the following list represents the average prices in effect on the current market:

BOILER TUBES—

	Seamless	Lapweld
1 inch	19 00	.....
1¼ inch	20 00	.....
1½ inch	20 00	.....
1¾ inch	21 50	.....
2 inch	20 00	16 00
2¼ inch	22 00	19 00
2½ inch	23 00	20 00
3 inch	27 00	24 00
3½ inch	32 00	28 00
4 inch	41 00	35 00

BUSY SEASON NOTED IN ENAMELED WARES

Toronto.

Distributors now generally report that business in enameled ware is very good. In discussing this market with Sanitary Engineer, one wholesaler remarked that trade was away in advance of last season's records, and was exceptionally good because of the large amount of building that has been undertaken this summer. It is said that there is lots of business to be had, and many dwellings and other structures are just about reaching the stage where enamel products are required. A busy hum is noted in shipping departments of both wholesalers and manufacturers. Prices are unchanged at the following levels:

ENAMELED WARE—

Enameled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.	51 40
Do., 5½ ft.	57 10
Lavatories—	
17x10" Apron F139 or P4045	15 30
18x24" Apron F154 or P3845 or P3847	23 60
18x21" Apron F169 or P4205	17 60
18x21" Roll Rim, F197, F199 or P4655-6	15 40
17x19" Roll Rim, F241 or P4345	12 60
Sinks, Roll Rim, 16x24 in.	18 10
Do., 18 x 30 in.	23 00
Do., 20 x 30 in.	24 70

Sinks, Flat Rim—	3 only	2 only	1 only
16x24	$7 60	$7 70	$7 80
18x30	8 50	8 60	8 70
20x30	9 70	9 80	9 90

Above prices, list, less 33 1-3 per cent.

All steel enamel baths, 4 and 4½ ft.	$14 00
Do., 5 ft.	15 00
Do. 5½ ft.	16 75

Steel bath quotations are net.

LEAD SHEETS FIRM UP HALF CENT PER LB.

Toronto

Lead sheets have now generally firmed up in price, the extent of the upward movement being approximately one-half cent per lb. This change brings the current average price to 9½ cents per lb. whereas the former quotation was nine cents. Other lead and zinc products continue unchanged in price, the upward revisions recorded recently still being in effect The undertone of the market is reported strong, with primary metals again on the road to improvement, consuming interest being on the increase and slightly higher levels now prevailing. Following are current levels on these products:

LEAD AND ZINC GOODS—	
Lead pipe, list, per lb.	0 13
Lead, waste pipe, list, per lb.	0 14
Do., over 8 in., list, per lb.	0 15

Lead pipe is subject to a discount of 10 per cent.

Lead traps and bends less, 15 per cent.

Lead sheets, 4 to 6 lbs., sq. ft. in rolls, lb.

Cut sheets, ½c to ¾c lb. extra and cut sheets to size, 1c lb. extra.

Solder wire, per lb.	0 30
Do., commercial, lb.	0 2?½
Do., strictly, lb.	0 21
Do., guaranteed, lb.	0 24
Do., wiping, lb.	0 21
Zinc sheets, per lb.	0 09 — 0 10

GOOD SEASONAL CALL FOR CLOSET OUTFITS

Toronto.

The large number of dwelling houses constructed during recent months has afforded better opportunities for the movement of closet outfits and fixtures, and trade in these products is still reported as very fair. Quotations continue at the revised levels announced in the last issue of Sanitary Engineer, this change affecting closet seats with a corresponding effect on the combination price levels. Building programs generally show signs of continuing well into the fall season, and prospects regarding the future call for these and similar building supplies are described as good. Following are the average prevailing quotations:

CLOSET COMBINATIONS, low down	each
Closet, standard outfit, oak	26 00
Do., with post hinge seat	26 20
Do., mahogany Vitro or Pussyfoot with mahogany post hinge seat and cover	28 45
Do., vitreous china, with oak post hinge seat and cover	28 45
Do., vitreous china, with mahogany post hinge seat and cover	28 70
Do., white Vitro or Pussyfoot, with oak post hinge seat and cover	28 45
Do., white Vitro or Pussyfoot with mahogany post hinge, seat and cover.	28 70
Do., enamelled iron tank with oak post hinge seat and cover	28 45
Do., enamelled iron tank with mahogany post hinge seat and cover	28 70
Additions or reductions to above:	
Add for reverse trap bowl	1 50
Add for syphon jet bowl	7 00
For ⅜ in. valve on supply pipe	1 50
Deduct for supply pipe	0 60
Deduct for floor flange and bolts	0 60
CLOSET BOWLS—	
Washdown bowl with spul	10 60
Reverse trap bowl, with spud	12 10
Syphon jet bowl, with spud	17 00
"Richelieu" bowl	10 50
CLOSET TANKS, low down, Oak, Vitro or Pussyfoot tank, with fittings, less seat	13 20
White Vitro or Pussyfoot tank with fittings, flush elbow and supply	15 65
Vitreous china tank with fittings, flush elbow and supply	18 00
Enamelled iron tank with fittings, flush elbow and supply	18 00
CLOSET SEATS—	
Oak post hinke seat and cover	3 85
Oak wood strip seat and cover	3 50
Mahogany finish post hinge seat and cvoer	4 05
Oak Richelieu seat and cover	3 50

LITTLE BETTER TONE IN ASBESTOS PRODUCTS

Toronto

Business in asbestos products continues on a slightly better basis, although the volume of current trade is described as nothing exceptional by manufacturers. Prices, however, are said to be stiffening up a little, which situation is in contrast to the weakness apparent during previous months. The market tone now shows signs of improvement. Quotations on asbestos sheathing have developed a range, some higher levels being recorded on local centres. Current prices follow:

ASBESTOS PRODUCTS—

Pipe Covering—
Air cell, 4ply ..... 60 per cent. off list.
Air cell, 3 ply ..... 65 per cent. off list.
Air cell, 2 ply ..... 67½% off standard list.
Boiler Covering .....$1.50 per bag.
Asbestos Sheathing ...$6.75 to $8.00 per 100 lbs.

SCARCITY OF RAW MATERIAL FOR PIPING

Toronto

The market situation in wrought piping is attracting special attention in view of the effects of southern strike conditions on the supply of raw material. With pig iron and other basic elements higher in price and more difficult to procure, there has developed a scarcity in some smaller sizes of pipe in certain quarters. Manufacturers state that the domestic situation has been well provided for. mills having been operating to capacity for some time past, thus providing stocks for the present requirements. A brisk demand for piping i still evident and the undertone is described as healthy, additional strength being noted through the speculation regarding the duration of the southern coal and rail labor difficulties. Primary centres record an upward tendency, with a shortage destined to gradually become more acute on both southern and domestic markets unless a settlement of the two strikes is reached in the near future. Current prices remain unchanged at list No. 54.

WROUGHT PIPE

Price list No. 54. December 22, 1921.

Standard Buttweld Pipe S/C

Size	Steel Blk.	Steel Galv.	Gen. Wrot. Iron Blk.	Gen. Wrot. Iron Galv.
⅛ in.	$6 00	$ 8 00	$	$ ....
¼ in.	3 84	5 94	7 20	9 30
⅜ in.	3 84	5 94	7 20	9 30
½ in.	4 85	6 46	7 31	8 93
¾ in.	5 87	7 71	8 86	10 70
1 in.	8 16	11 05	12 58	15 30
1¼ in.	11 04	14 95	17 02	20 70
1½ in.	13 20	17 88	20 35	24 75
2 in.	17 76	24 05	27 38	33 30
2½ in.	28 08	38 03	.....	.....
3 in.	36 72	49 73	.....	.....
3½ in.	47 84	63 48	.....	.....
4 in.	56 68	75 21	.....	.....

Standard Lapweld Pipe S/C
Per 100 feet.

Size.	Steel Blk.	Steel Galv.	Gen. Wrot. Iron Blk.	Gen. Wrot. Iron Galv.
2 in.	$21 46	$27,38	$31,08	$37 00
2½ in.	31,50	40 05	46 80	56 16
3 in.	41 31	53 55	61 20	73 44
3½ in.	48 76	65 32	72 68	89 24
4 in.	57 77	77 39	86 11	105 73
4½ in.	66 04	86 36	1 04	1 24
5 in.	76 96	100 64	1 21	1 45
6 in.	1 00	1 31	1 57	1 88
7 in.	1 33	1 76	2 02	2 45
8L in.	1 40	1 85	2 13	2 58
8 in.	1 61	2 13	2 45	2 97
9 in.	1 97	2 59	2 97	3 59
10L in.	1 82	2 40	2 75	3 33
10 in.	2 35	3 09	3 54	4 28

FIRM UNDERTONE IN COPPER AND BRASS

Toronto.

A firm undertone is reported in copper and brass goods, prices on these lines remaining firm at the recent upward revisions. No further developments have been recorded, it being stated that the primary markets continue to show signs of strength, with more consumer interest reflecting a stronger tone. Prices are firm at the following levels, with a fair seasonal movement:

BRASS—	
Sheets base, per lb.	0 23
Rods, base, per lb.	0 20
Tubing, base, per lb.	0 28
COPPER—	
Rods, base, per lb.	0 28
Soft sheets, plain, 1 oz. and heavier, lb.	0 29
Do., plain tinned, 16 oz. and heavier, per lb.	0 36
Do., polished, and tinned, 16 oz. and heavier, lb.	0 41
Tubing	0 32

DEMAND FOR TROUGH AND PIPE KEEPING UP

Toronto.

An exceptional brisk demand for eavestrough and conductor pipe for this time of the year is generally reported by manufacturers and distributors. It is pointed out that the call for these products usually subsides during the mid-summer period to recover heavier proportions again during the fall session. This season, however, the movement has kept up remarkably well, this being attributed to the steady requirements of building interests. Quotations remain unchanged, with the firm undertone outlined in recent market r

(Continued on Page 34)

MUELLER

Compression Stop Cocks

Beauty of design—freedom from sharp angles and creases — and the ease with which they can be kept clean—make MUELLER Compression Stop Cocks especially desirable for residence plumbing.

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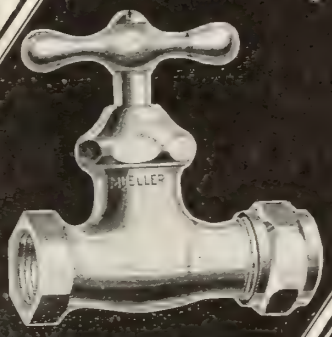

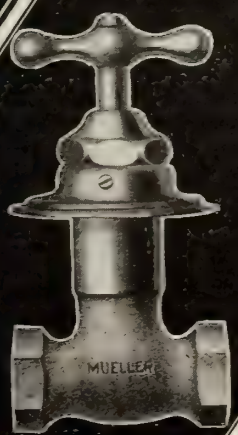

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TORONTO MARKETS

(Continued from page 32)

ports still being apparent. Galvanized prices are considered strong, and the developments in the primary steel centres reflect to a greater or less extent on the market strength of practically all finished products. Unchanged quotations follow:

TROUGH EAVE—

O. G. Square Bead and half round. Size in girth:

8 in.	15 90
10 in.	17 70
12 in.	21 20
15 in.	28 80
18 in.	36 50

Less 70 and 10 per cent.

PIPE (CONDUCTOR)—

Plain, round or corrugated.

	Per 100 ft. in 10 ft. lengths.
2 in., in 10 ft. lengths, list	18 40
3 in., in 10 ft. lengths, list	22 30
4 in., in 10 ft. lengths, list	29 60
5 in., in 10 ft. lengths, list	40 00
6 in., in 10 ft. lengths	49 00

Less 70-10 per cent.

ELBOWS (CONDUCTOR)—

2 inch, list	5 25
3 inch, list	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00

Less 60 per cent.

RANGE BOILER PRICES ON STEADIER BASIS

Toronto.

Conditions in the range boiler market are described as much more satisfactory during recent weeks, and compare favorably with the situation recorded at this time last year. The current volume of trade is also on an improved basis, and from the price shading which was so common at that time, quotations have firmed up considerably until distributors are generally interested in maintaining the current list. The strength of the steel industry is described as serving to maintain prices on range boilers, flat galvanized sheets being higher in price as well as somewhat scarce owing to delayed deliveries. Following is the nominal list with discounts:

RANGE BOILERS—

Size.	List Price.
5-gallon	$13 50
12 to 15 gallon	14 00
18-gallon	15 00
25-gallon	16 50
30-gallon	17 50
35-gallon	20 50
40-gallon	22 75
52-gallon	38 00
66-gallon	60 75
82-gallon	74 00
100-gallon	103 00
120-gallon	117 00
144-gallon	164 00
168-gallon	187 00
192-gallon	210 00

Discounts, Standard weight, 50 per cent.
Extra heavy, 40 per cent.

SCRAP MATERIALS STILL IN DULL CONDITION

Toronto.

The scrap material markets are still reported in a dull condition, with very little movement in current trade conditions. The only bright spot, if it can be described as such, is the fact that copper again appears to be a little stronger in virgin metal circles. Other waste metals remain generally unchanged, with prices being maintained where possible by dealers, but it is noted that the present trend is inclined to be easier in some instances. Following are the usual averages of local buying prices for fairly large quantities:

SCRAP MATERIALS—

Scrap Iron

Gross Tons—		
Heavy melting steel (Hamilton)	$13 00	$13 50
Borings and turnings	6 00	7 00
Rerolling rails	12 00	13 00
Scrap pipe	5 00	6 00
No. 1 railroad wrought	10 25	11 25
Steel turnings (Hamilton)	9 75	10 25
Agricultural malleable	12 00	13 00
Railroad malleable	13 00	14 00
Net tons—		
No. 1 cast	18 00	19 00
Stove plate	15 00	16 00
Grate bars	11 00	11 50
Standard car wheels	14 00	15 00

Scrap Metals

Heavy copper and wire	10 75	11 25
Light copper	9 25	9 75
No. 1 composition	9 00	9 50
No. 1 comp. turnings	7 25	7 50
Light brass	3 50	4 50
Heavy yellow brass	5 50	6 50
Heavy Lead	5 00	5 50
Tea lead	2 75	3 50
Scrap zinc	4 25	4 50

Scrap Rubber.

Boots and shoes	2 00	....
Lumbermen's rubber boots	1 25	1 50
Auto tires	0 40	0 50
Solid tires	0 60	1 00

RANGE STILL EVIDENT IN BAR IRON PRICE

Toronto

Local quotations on bar iron and steel remain at the range between $3.15 and $3.25 base, and with the present situation a strong market is anticipated for the ensuing weeks. It is pointed out that stocks of iron and steel are at a low level and if production is curtailed it will have a direct bearing on the situation. There is however, the usual period of lighter requirements ahead, and before the active buying movement in the fall there is time to work on a surplus, thus improving stocks for the following months. A general firming up to the higher quotation is looked for in the near future, it being stated by certain distributors that this would probably have developed previously, but for the quiet summer period.

IRON AND STEEL—

Mild steel bars, base	3 15	3 25
Mild steel bands, 3-16 in. base	3 65	3 75
Bar iron, base	3 15	3 25
Angle iron, base	3 25	3 35
Horshoe iron	3 75	3 85
Tire steel	3 35	3 45
Spring steel	7 00	8 00
Toe caulk iron	4 00	4 10
Hoop steel	4 00	4 10
Norway iron		12 50
Sleigh shoe steel	3 15	3 25
Crucible cast sheet steel		28.00
Mining Drill steel		18.50
Cast tool steel, high grade		30 00
Do., do., Medium		18.00

GOOD OUTLOOK EVIDENT FOR RADIATOR TRADE

Toronto.

Current trade in radiators and boilers is described as very brisk, with an optimistic viewpoint in evidence regarding the outlook for fall. The improved conditions noted during the past few weeks continue apparent, with the market considerably strengthened by scarcity and higher prices on such raw materials as pig iron and coke. Delivery of such basic elements is also stated to be more or less tied up as a result of southern transportation and coal mine strikes, these conditions providing a very firm undertone for future quotations. No price changes have been made effective on domestic centres, but one manufacturer stated that the possibility of any easier levels for late season trade has practically been removed by the developments in the steel industry and the current quotations have not taken into consideration such tendencies.

RADIATORS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60.

Discount on 2, 3, 4 and 5 column standard sizes, 59% for water and 60% for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 51% for water and 52% for steam.

Discounts on 1-column hospital size, water 33%; steam 34%.

Wall radiators—5 ft. $1.15; 6 ft. $1.10; 7 ft. $1.05; 9 ft. $1.05; 12 ft., $1.05. Discount 56%.

BOILERS—

Water:

Round 64% off list. Square 15%. off list.

Steam:

Round 28% off list; Square 15%. off list.

BETTER TRADE EVIDENT IN COMPRESSION GOODS

Toronto

Trade in brass compression goods is gaining in volume as the building season progresses. Many dwellings and other construction work is now at the stage where these products are required, and both manufacturers and distributors report that a marked improvement is evident in the volume of sales. Prices are generally unchanged, a steadier tone having developed in the primary materials, with this trend being more or less reflected in quotations on the finished goods. Following are current discounts:

VALVES—	Per cent.
Compression work, standard	45
Fuller work, standard	30
Bath cocks, compression	41
Do., Fuller	25
Flatway stop and wastecocks, stand'd.	54
Roundway stop and waste cocks std.	46
Brass steam cocks, standard ½" to 2"	50
Do., 2½" to 3"	43
Globe, angle and check valves, std.	25
Mueller globe, angle and check	25
Mueller composition disc steam valves	33
J.M.T. valves, screwed	20|10
J.M.T. gate valves, screwed	25|10
Jenkins gate or straightway, screwed	25|10
Jenkins globe, screwed	19|10
Radiator valves, standard	58
Do., removable disc	58
Emco, J. D., rad. valves, screwed	33
Emco swing check, ⅜" and ½"	40
Do., other sizes	33
Webster gate valves, screwed	33
Emco globe valves, std.	25
Emco globe valves, J.D., screwed	33
Basin Cocks	
No. 0 and 1 Fuller pattern	30
Quick opening No. 3633	50
No. 3623, plain or index handle	34

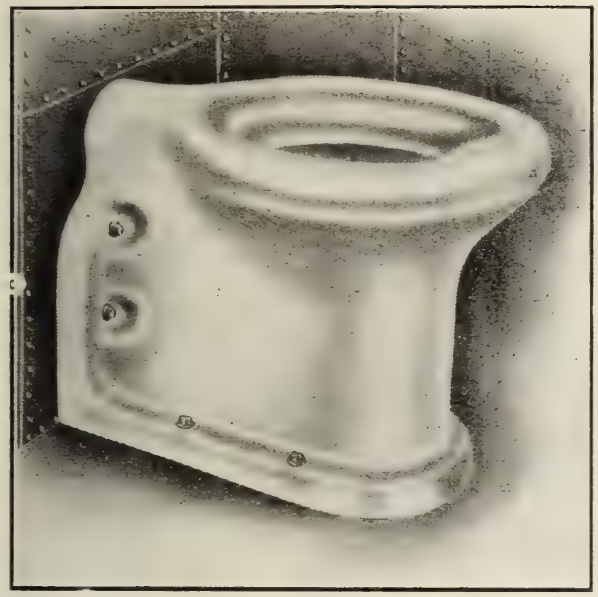
MARKED STRENGTH NOTED IN CORRUGATED SHEETS

Toronto

Due to the brisk call for flat galvanized sheets and the combined effects of southern rail and coal strike conditions, a marked degree of strength is evident in the primary market for corrugated sheets. No change in quotations has been announced, but it is stated that the prices on the lighter gauges are considerably firmer, while the effect of this improvement is also noted on heavier gauges, but not to the same extent as the call for the latter products is moderate. Compared with previous records, it is pointed out that the current degree of activity in corrugated sheets is very satisfactory. With building ac-

(Continued on page 36)

Special Fixtures For Prison Work



No. 271 N.

This closet has been specially designed for prison work, and the many hundreds which have been installed in institutions throughout Canada have proven the unusual merits it possesses for that specific purpose.

Both supply and outlet are to the wall and the direct waterway, while providing a perfect seal, is such as to eliminate any chance of trouble from obstruction. The closet throughout is of very massive construction, and has a comfortably designed integral seat as shown.

Being produced in Canadian solid vitreous ware, absolute and enduring sanitation and cleanliness are of course assured.

This lavatory is also specially designed for prison installation, being of extra heavy construction.

Both supply and outlet are to the wall and is so fitted that no metal parts are exposed for interference.

The back is ground smooth so as to ensure a perfect fit against the wall, and china bolt caps are furnished to be cemented in after the lavatory is bolted in position.

The bowl is of adequate size and soap dish is furnished in left hand corner as shown.

Made in Canadian solid vitreous ware, its life of unchanging sanitary service and lustrous cleanliness is practically unlimited.

No. 798

CANADIAN POTTERIES
LIMITED

SAINT JOHNS
QUEBEC

Sales handled exclusively through recognized jobbers in plumbing supplies.

TORONTO MARKETS

(Continued from page 34)

tivities continuing well into the fall season, a correspondingly brisk movement is looked for.

CORRUGATED SHEETS—	Per 100 Sq. Ft.
No. 28 gauge	$6 50
No. 26 gauge	7 00
No. 26, U. S. gauge	8 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50

Less 10 per cent.

Lighter than 24 gauge and wider than 27 inches, 75c. per square extra.

UPWARD MOVE IN INGOT METAL PRICES

Toronto.

Ingot metals are somewhat higher in price practically all through the list, due to firmer conditions and increased quotations on the primary markets. The stabilization of the exchange situation is cited as the keynote to permanent improvement in this direction, and until this object is achieved, the current demand for non-ferrous metals is expected to be somewhat spasmodic and prices continue to fluctuate according' Copper is higher one-half cent locally, tin also registering a similar increase. Spelter records the greatest comparative advance, quotations being $8.25, compared with the former level of $7.75. Lead also shows another increase. Antimony and aluminum are unchanged.

COPPER.—Fair sales of copper are being recorded, and consumers are showing more interest in future positions. There is a lack of animation in the current market, but prices are steady. Local quotations have firmed up to the level of 17½ cents.

TIN.—Owing to the recent advance in London prices, local levels have also registered slight increases, the current average being 36½ cents. There has also been a slight improvement in demand, and quotations on primary centres are consequently higher.

LEAD. — This market continues strong with a good consuming demand. The upward trend to primary markets is still evident, and local prices are also relatively higher. The new level i $7.50.

SPELTER.—This metal records another marked increase in domestic circles, and the new local price is $8.25 compared with the former level of $7.75. This is the third increase recently announced on this market, but while the current trend is firm and prices are steady, the upward climb has halted in primary centres. This is naturally expected after such a strenuous movement. The outlook is described as fairly good.

ANTIMONY.—There is very little to report in the antimony situation, prices remaining unchanged and the current demand of a quiet nature. Present local prices are remaining between 6 and 7 cents.

ALUMINUM.—The dullness which has characterized the aluminum market during recent weeks is still in evidence, and no new features have been recorded. Local quotations are unchanged at the previous levels of 20 to 21 cents.

Winnipeg Markets

WINNIPEG, August 13.—Due to the activity in building the demand for steam fitters' and plumbers' supplies continues to show an improvement. Orders are not unusually large, but the seasonable movement is fair and the aggregate makes a satisfactory showing. A strong tendency is noted in lead products. There is an improvement in the demand for radiators and boilers.

IMPROVEMENT NOTED FOR RADIATORS AND BOILERS

Winnipeg.

Winnipeg.—As the season advances there is an improvement noted in the demand for radiators and boilers due to the increased building activity going on at the present time. Prices remain steady and show no change.

SEASONABLE DEMAND FOR BATHROOM FIXTURES

Winnipeg.

Winnipeg.—There is an improvement in the demand for bathtubs and fixtures caused by the increased amount of building operations that are in progress.

PIPE FITTINGS RECORD LITTLE CHANGE

Winnipeg.

Winnipeg.—The demand for pipe fittings continues in fair proportion with the trade showing a slight improvement in the demand. Quotations on the different lines are unchanged with the market ruling steady.

NEW PRICE LIST ON SOIL PIPE

Winnipeg.

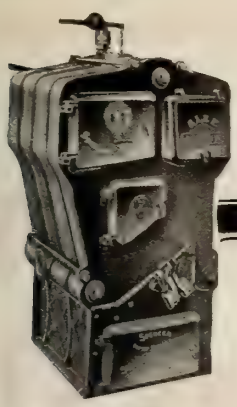
Winnipeg.—Quotations on both soil pipe and fittings are showing a slight advance. There has been an improvement in the movement of these products and this is well maintained up to the present time. There is a firmer tendency due to the continuation of the coal strike and new local quotations are as follows:

SOIL PIPE—	
2 and 3 in.	20%
4 in.	30%
5 and 6 in.	25%
Net List.	
SOIL PIPE FITTINGS—	
2 and 3 in.	40%
4, 5 and 6 in.	45%
Net List.	

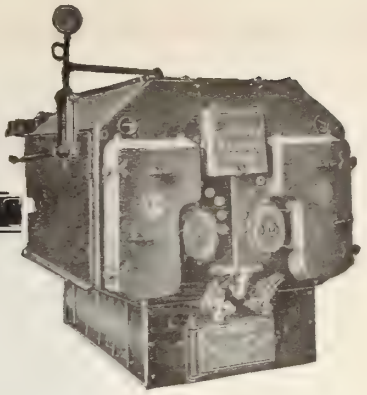
Figuring the New Stamp Tax

ALL CHEQUES issued after August 1 must bear stamps at the rate of 2 cents for each $50 or fraction thereof. Cheques for $5,000 must bear stamps to the value of $2 which is the maximum cheque tax. A cheque up to $50 requires 2 cents in stamps but a cheque for $50.01 requires 4 cents in stamps. The following schedule shows the tax required on cheques. Clip it out and paste it in a handy place in the office.

Amount of Cheque	Tax	Amount of Cheque	Tax	Amount of Cheque	Tax
$ 50	$ .02	$1750	$ .70	$3450	$1.38
100	.04	1800	.72	3500	1.40
150	.06	1850	.74	3550	1.42
200	.08	1900	.76	3600	1.44
250	.10	1950	.78	3650	1.46
300	.12	2000	.80	3700	1.48
350	.14	2050	.82	3750	1.50
400	.16	2100	.84	3800	1.52
450	.18	2150	.86	3850	1.54
500	.20	2200	.88	3900	1.56
550	.22	2250	.90	3950	1.58
600	.24	2300	.92	4000	1.60
650	.26	2350	.94	4050	1.62
700	.28	2400	.96	4100	1.64
750	.30	2450	.98	4150	1.66
800	.32	2500	1.00	4200	1.68
850	.34	2550	1.02	4250	1.70
900	.36	2600	1.04	4300	1.72
950	.38	2650	1.06	4350	1.74
1000	.40	2700	1.08	4400	1.76
1050	.42	2750	1.10	4450	1.78
1100	.44	2800	1.12	4500	1.80
1150	.46	2850	1.14	4550	1.82
1200	.48	2900	1.16	4600	1.84
1250	.50	2950	1.18	4650	1.86
1300	.52	3000	1.20	4700	1.88
1350	.54	3050	1.22	4750	1.90
1400	.56	3100	1.24	4800	1.92
1450	.58	3150	1.26	4850	1.94
1500	.60	3200	1.28	4900	1.96
1550	.62	3250	1.30	4950	1.98
1600	.64	3300	1.32	4950.01	2.00
1650	.66	3350	1.34	(and over)	
1700	.68	3400	1.36		



Hot Water — 10 sizes.
600 to 3,600 sq. ft.



Steam—27 sizes, 375 to 10,000 sq. ft.

Building for the Future

Whenever one builds a residence or renovates he naturally looks forward into the future hoping that the completed job will pay him in every respect.

One important item is that of Heaters. If you want to be sure of making a profitable impression, one that will bring increased business in the future, install your customers' particular choice of "Spencer" heaters.

Either one of the "Spencers" are easy to run and require little attention. Burn various kinds of coal (hard or soft), coke, fuel oil or gas in a smokeless manner, and with a constant service. The magazine holds a 24-hour supply, feeds uniformly, only as fast as coal is consumed, giving exact control. They have maintained temperatures 48 hours in the coldest weather without attention.

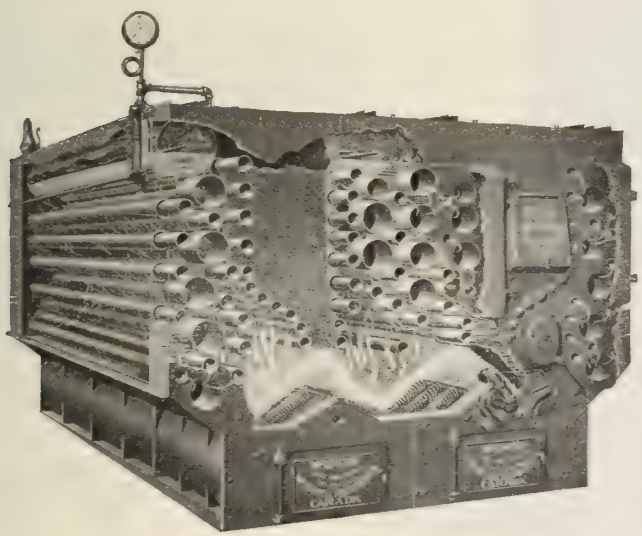
We offer many sizes and a wide variety. Send us your name and address and we will furnish further particulars.

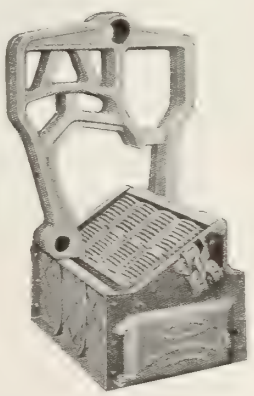
If you don't know the facts concerning the Spencer, "it's time you did."

Every Spencer boiler is sold under a written guarantee and bond.

The best plan is to visit our Booth, north east corner Industrial Bldg., at the Toronto Exhibition, August 26th - September 9th. There you will have demonstrated the wonderful possibilities in connection with the Spencer Heaters.

It will be a very great pleasure for us to meet all who care to visit our showrooms at 68 Adelaide Street East. (Near Yonge Street.) Just come and introduce yourself.





Spencer Heater Company of Canada, Limited

68 Adelaide Street East — Toronto, Ontario

WINNIPEG, MAN.
185 Portage Ave. E.

PLANT
Penetang, Ont.

MONTREAL, QUE.
71 St. James Street

BANNER
STOVES AND FURNACES

You'll Always
Away Ou

Living right up to its name—that's the Banner every time. **Better** materials—**better** work-

The Banner Pipe Furnace

The Banner Pipe Furnace represents the most satisfactory and efficient warm air system.

Warm air heating with "The Banner Furnace" as the "Heart of the System" provides an ideal method of ventilation and heating.

The Banner Pipe job can be installed for at least one quarter the price of a steam or hot water job.

The Banner is getting the business because it is efficient, satisfactory in every way, and is reasonable in price.

Many features such as cast-iron combination chamber, four individual shaker grate bars, large fire door, full rated capacity, large roomy ashpit, etc., make the Banner the most desirable line to handle.

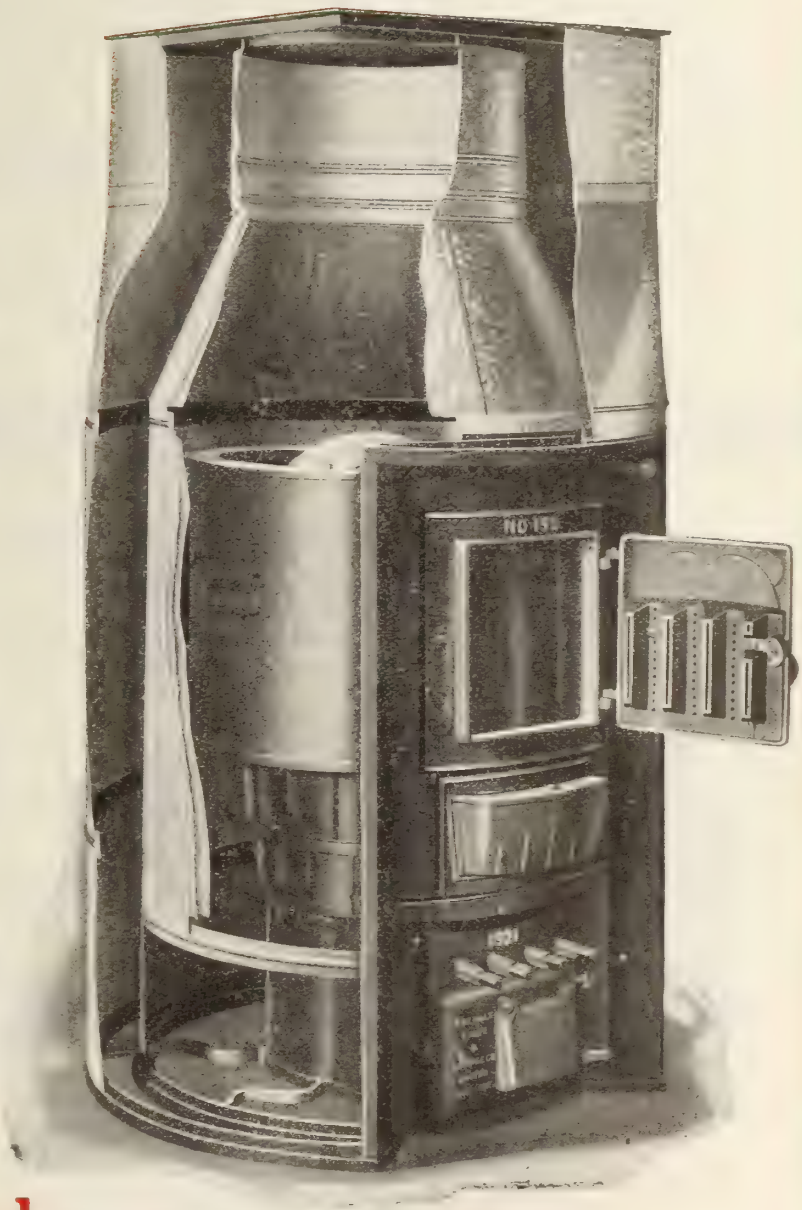
Representatives for Western Canada:
James McLarty Co.
27 May Street
Winnipeg, Man.

The Galt Stove &
GALT

ind the Banner
n Front

BANNER STOVES AND FURNACES

manship—**advanced** design—all these give the Banner a big lead in both the piped and pipeless furnace field.



The Banner Pipeless Furnace

The Banner Pipeless Furnace has made an enviable reputation as a furnace that is efficient and economical.

Thousands of Canadian homes were satisfactorily heated during the past winter by the Banner Pipeless. Our booklet of testimonials will be cheerfully sent for the asking.

There is a lot of money to be made by the Plumber by installing the Banner Pipeless Furnace. One man with a helper can install the Banner Pipeless in less than one day.

Our unconditional guarantee is behind every Banner Furnace.

Write to-day for literature and more particulars and agency proposition regarding the Banner Pipeless Furnace.

Full instructions for erecting with each furnace. Made in five sizes.

Send for catalogue and Agency proposition. They're worth while.

rnace Co., Limited
ONTARIO

Representative for Quebec:
R. Lapierre
18 St. Maurice St.
Montreal

September First

issue will feature another complete Novelette

"Lady of Ventures"

By ANN GAY

A young and charming young lady dances through a maze of mysteriously surprising adventures.
A mystery story without a crime. Montreal at its best by a lady who knows it well and who throws the fascinating glamor of a charming romance over scenes and locations familiar to many Canadians.

Irresistibly funny
Ludicrously laughable
Excruciatingly humorous
Is Napier Moore's gem

"A Case of Amnesia

Don't miss this

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Col. Geo. Ham—In another of his inimitable Western Reminiscences. Calgary from Tent to Ten Stories.

Mugsey—John Gowan; a very human document featuring a canine hero.

Success—Beatrice Redpath builds us a fine story of the love of two men for one woman.

"Human Nature and the Postman," by Gertrude E. S. Pringle. More of the colorful "Merchantmen of the Seven Seas." The Woman's Department and the Scout's Page.

and another exciting section of the
"Timber Pirate"

All these in the Sept. 1st Issue of

September First Issue

MACLEAN'S

"CANADA'S NATIONAL MAGAZINE"

September First Issue

BEAVER BRAND
Porcelain Enamel Ware

—*Your Guarantee of Quality*—

Beaver Brand Enamelware by its ability to meet the highest demands for service under all conditions, has established itself in the confidence of the public to such an extent that each month witnesses an ever-increasing demand for products of Beaver manufacture.

Amherst Foundry Co., Limited

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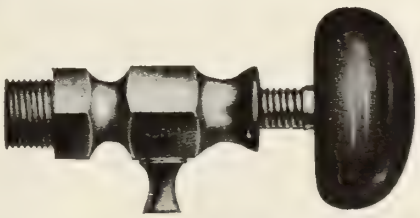
PREPARE FOR FALL TRADE

We have complete stocks of the famous Beaton & Corbin (B. & C.) Floor and Ceiling Plates and Air Vents.

No. 210

No. 211



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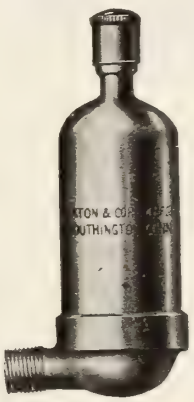

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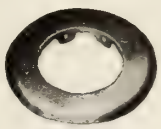
Sizes ½ to 4



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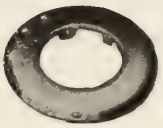

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Sanitary and Heating Specialties

269 West Richmond St. Toronto

SIMPLEX CAST IRON TRAPS Built for Service.

Fig. No. 282

Self-Scouring Non-Syphoning Adjustable

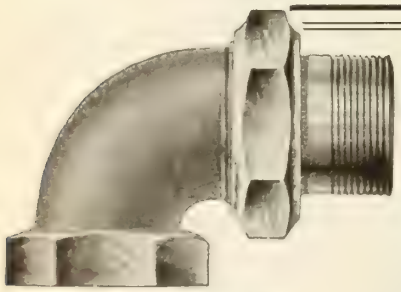
Smooth castings—aluminum finished—sink connection and S. J. Nut White Plated. Not just as good but better.

BUY - INSTAL - SPECIFY - WOLVERINE

It pays to have **Wolverine** articles on hand for instant use. Prepare for good business by ordering now. You will be pleased with our goods and our service.

76 Nelson Street **WOLVERINE LIMITED** Toronto

MAKE OUR OFFICE YOUR OFFICE WHEN ATTENDING TORONTO EXHIBITION



Radiator Union Elbows—Brass No. 41.

Kerr N. P. Union Elbows for Radiators

In construction, design and quality of material and workmanship, these Elbows are equal to our popular line of Radiator Valves.

They have the standard angle or centre to face, and assemble on Radiators with equal facility with our Standard Steam and Hot Water Radiator Valves, thus avoiding pipe fitters' troubles with valves of long or short centre to face dimensions.

Kerr Union Elbows and Union Radiator Valves make for a first class heating job.

Each Valve and Elbow is tested before it leaves our works.
Ask for them, and see that you get them.

The Kerr Engine Co., Limited

Valve Manufacturers - Walkerville, Ontario

Allpriser—
Your Price Clerk

Write for further information

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New Prices on

TORONTO Gendron CANADA

Bathroom Fittings and Hardware Specialties

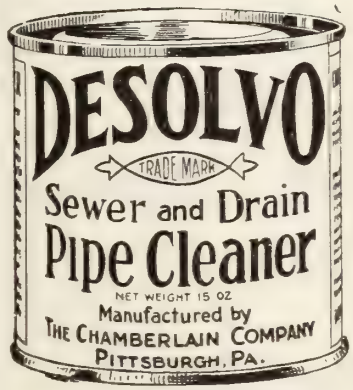
We are glad to be able to announce to the trade a general reduction in prices of our Bathroom Fittings and Hardware Specialties Lines.

The Trying Times of High Prices in these lines is over!

Gendron prices are down to rock-bottom. Write to-day and get our new price lists.

The Gendron Mfg. Co., Limited

Duchess Street - Toronto



Saves Tearing Up the House and Lawns

Desolvo is the modern way. It gains goodwill for you by clearing clogged or frozen pipes easily, quickly, in a common-sense way. The old method of tearing up floors, lawns, shrubbery and flowerbeds until the point of trouble was reached, could not help but leave a feeling of resentment in the customers who were so served.

It saves you money and time on your job to serve customers quickly and agreeably by using Desolvo.

THE CHAMBERLAIN DESOLVO CO., LTD.

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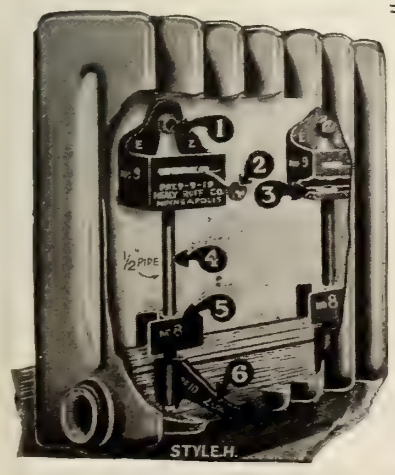

It is Simple in Construction but Reliable

The E.Z. Radiator Hanger is not complicated in any way—just a simple little hanger with real strength sufficient to hold a radiator.
There is really nothing more to be desired and for those wanting a completely-finished look in connection with the interior work of the new home they are building should be advised to use E.Z. Radiator Hangers when having radiators installed.

Moderate in Price. **Made in Canada.**

HEALY-RUFF CO. Minneapolis, Minn.

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A. Walker, 514 McLean Bldg., Calgary.
E. T. Flanigan, 229 College St., Toronto.
Eager Coombs & Co., Ltd., Halifax, Can.
Shaver Bros., Booth Bldg., Ottawa.
S. T. Hadley, 304 University Street, Montreal.

Style "R"

USE

TESTED Soil Pipe

IT COSTS NO MORE AND YOU KNOW THE JOB IS RIGHT

Manufactured by

FORWELL FOUNDRY, LTD.

KITCHENER, ONT.

THE TRADE

Is Respectfully Cautioned

to specify

RIVETED RANGE BOILERS

Made by the old reliable

TORONTO HARDWARE MFG. CO., LIMITED

"Supreme"

Water Heater

(electric or gas)

"Just a Real Good Heater"

Recognized by satisfied users as the most economical and efficient heater on the market.

If you are not selling the Supreme write for our proposition to-day. It's a profitable one.

Manufactured by

Supreme Water Heater Mfg. Company

1 Carlton St. Toronto

ATTENTION! Contract Shops, Stores, Employers, Clerks, Mechanics, etc.

Our new HOME STUDY course in BUSINESS ADMINISTRATION is now ready for the trade. It teaches you the most modern methods of Business.
Learn to extend your Markets; enlarge your Business; Learn to adjust all the business combinations to the limit. We build on top of your present Ability and give you a business training equal to the best.
We teach you in your own home or office, Clear, Personal, Direct. An Hour a Day will prepare you into a highly specialized Executive. Make ready for the next great prosperous Building wave.

Full information free.

COURSES IN MODERN BUSINESS ADMINISTRATION
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ST. LOUIS TECHNICAL INSTITUTE

4543 Clayton Ave. O. W. Kothe, Prin. St. Louis, Mo.

WELCOME!

At the big Gurney exhibit in the centre of the Stove Building at the Canadian National Exhibition, Toronto, a cordial welcome awaits you.

Sanitary and Heating Engineers from out-of-town points are invited to make our offices at 500 King St., West, their headquarters while in the city.

A full display of Gurney Hot Water Boilers, Radiators, Tank and Gas Water Heaters may be seen at our showrooms at 500 King St., West.

A King Street car going West will take you to our plant. Get off at Spadina.

The Gurney Foundry Co., Limited

Cooking and Heating Appliances

TORONTO, CANADA

Montreal Winnipeg
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Gurney

"Only ONE Moving Part"

EXHIBITION ANNOUNCEMENT

You will find our EXHIBIT at the C. N. E. in the same location as the last two years, in the

North-west Corner *of the* Machinery Hall

The **1923 Model Tankless Fresh Water System** will then be ready.

We shall also there introduce our NEW LOW PRICE

WESTCO SOFT WATER TANK SYSTEM

Be sure to call at our booth, get acquainted, and let us show you the difference between A WESTCO and the ORDINARY water system.

Westco Pumps for Rural Schools, Skinner Irrigating Systems, Greenhouses, Golf Courses, Condensation Return Units, Oil Burners, Boiler Feed, etc.

Completely Canadian Made

Westco Pumps Limited

TORONTO - ONTARIO

To Holders of Five Year 5½ per cent Canada's Victory Bonds

Issued in 1917 and Maturing 1st December, 1922

CONVERSION PROPOSALS

THE MINISTER OF FINANCE offers to holders of these bonds who desire to continue their investment in Dominion of Canada securities the privilege of exchanging the maturing bonds for new bonds bearing 5½ per cent. interest, payable half yearly, of either of the following classes:—

(a) Five year bonds, dated 1st November, 1922, to mature 1st November, 1927.

(b) Ten year bonds, dated 1st November, 1922, to mature 1st November, 1932.

While the maturing bonds will carry interest to 1st December, 1922, the new bonds will commence to earn interest from 1st November, 1922, GIVING A BONUS OF A FULL MONTH'S INTEREST TO THOSE AVAILING THEMSELVES OF THE CONVERSION PRIVILEGE.

This offer is made to holders of the maturing bonds and is not open to other investors. The bonds to be issued under this proposal will be substantially of the same character as those which are maturing, except that the exemption from taxation does not apply to the new issue.

Dated at Ottawa, 8th August, 1922.

Holders of the maturing bonds who wish to avail themselves of this conversion privilege should take their bonds AS EARLY AS POSSIBLE, BUT NOT LATER THAN SEPTEMBER 30th, to a Branch of any Chartered Bank in Canada and receive in exchange an official receipt for the bonds surrendered, containing an undertaking to deliver the corresponding bonds of the new issue.

Holders of maturing fully registered bonds, interest payable by cheque from Ottawa, will receive their December 1 interest cheque as usual. Holders of coupon bonds will detach and retain the last unmatured coupon before surrendering the bond itself for conversion purposes.

The surrendered bonds will be forwarded by banks to the Minister of Finance at Ottawa, where they will be exchanged for bonds of the new issue, in fully registered, or coupon registered or coupon bearer form carrying interest payable 1st May and 1st November of each year of the duration of the loan, the first interest payment accruing and payable 1st May, 1923. Bonds of the new issue will be sent to the banks for delivery immediately after the receipt of the surrendered bonds.

The bonds of the maturing issue which are not converted under this proposal will be paid off in cash on the 1st December, 1922.

W. S. FIELDING,
Minister of Finance.

Two Great Values

There are no greater values of a publication as an advertising medium than its

Editorial Excellence

and as being a member of the

Audit Bureau of Circulations

These factors show that the paper is worth reading and how many people are reading it.

In both, the advertiser is vitally interested.

Sanitary Engineer invites the closest scrutiny. Its A.B.C. report is accessible to advertisers. No other Plumbing and Heating paper in Canada has submitted its circulation records to the Audit Bureau of Circulations.

Sanitary Engineer

143 University Ave. - Toronto

The Everlasting Veneer Toilet Seat

Strong, Clean Hygienic

This reliable, dependable toilet seat is made of 7 and 9-ply, air-seasoned wood veneer, held together by our special wood cement. This cement is proof against heat, cold or dampness. The veneering is distributed according to the strain and wear required of the different parts. The Everlasting Seat will never crack, warp or split.

It is a splendid seat for use in cold, damp basements where closets must be installed. The Everlasting Toilet Seat will meet, and successfully resist these severe conditions of moisture, changing temperature, etc.

Canadian Veneering Company, Incorporated

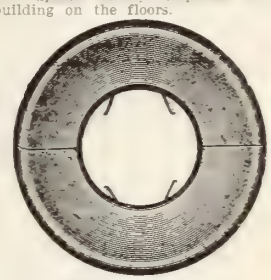
Acton Vale Quebec

Quality The Beaton and Cadwell Mfg Co New Britain Conn *Service*

OPEN VIEW NO. 10-A
OPEN VIEW NO. 10A

The Ceiling Plate that everyone should use

The No. 10-A Narrow Flange Plate is a Steel-Hinged Plate. Flanges 3-4 ins. wide. Highly finished Especially designed for Two Pipes Close to Wall Narrow
This plate is coming more and more into use. Always gives a nice finish because it can be attached to studs and risers at the very last, and is not exposed during construction of a building on the floors.



Made in sizes from 1-2 in. to 2 in. inclusive
High quality at the right price.
Gem No. 4. Automatic Air Valve
This automatic air valve is made of the best brass obtainable and is equipped with white enamel dial. The mechanism is perfect, every valve being guaranteed by us.
Write for catalogue showing our complete line of specialties.

The Beaton & Cadwell Mfg. Co.
New Britain, Conn.

Eastern Agents:
J. R. Devereaux & Co
602 New Birks Bldg.
Montreal

Western Agents:
A. E. Hinds & Co.
Chamber of Commerce
Winnipeg

Three Times As Big As It Looks

That is, three times bigger in heat-giving qualities. This bigness comes from the corrugated crown plate, which has three times the fire surface that a flat one has.

No wonder the Burnham is such an economical boiler.

Write for complete information.

Lord & Burnham Co. Limited of Canada
(Boiler Department)

Harbor Com. Bldg. Toronto.

Burnham Cosy Comfort Heat 86

Factory—St. Catharines, Ontario.

Heating Engineers!

SEE THE INSIDE

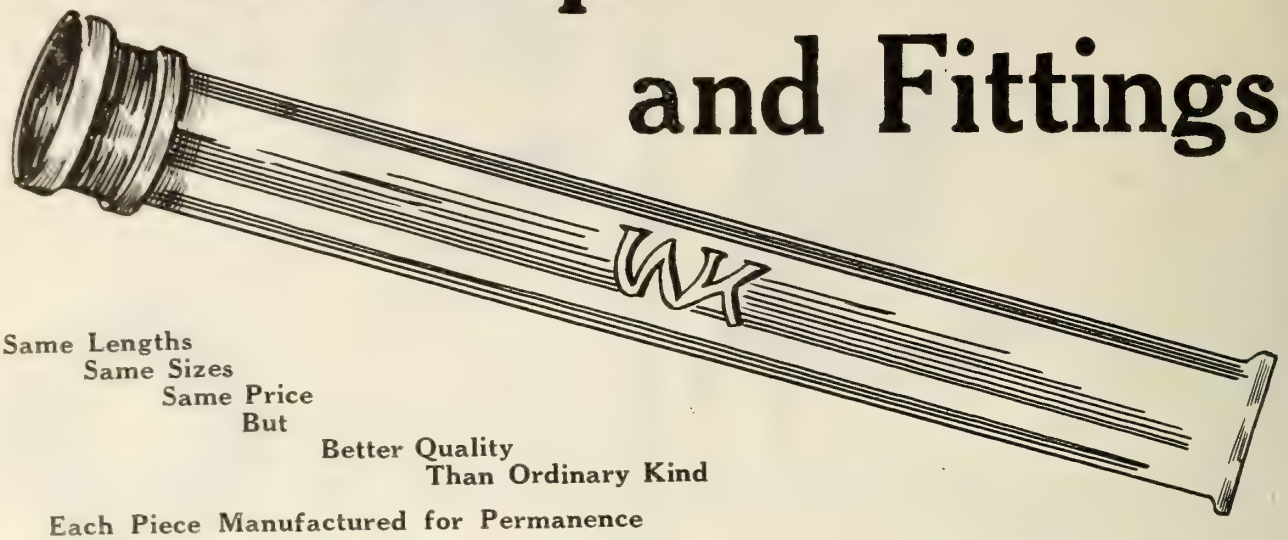
of an Atlas positive circulator designed specially for Hot Water Heating; its ball bearings and non-corrosive parts for long life. Ideal for sluggish systems. Unequalled in forced hot water jobs.

See our exhibit in the Machinery Hall at the Canadian National Exhibition or at our works.

The Atlas Engineering and Machine Co.
Limited

23 River St. Toronto

Soil Pipe and Fittings



Same Lengths
Same Sizes
Same Price
But
Better Quality
Than Ordinary Kind

Each Piece Manufactured for Permanence

WARDEN KING, Limited, Montreal

Branch Office; 136 Simcoe St., Toronto

Why are the

VULCAN

Pure Air Furnaces Superior in Radiation?

because they give off a more satisfactory amount of heat in proportion than any other furnace, on account of the greater total area of radiation surface.

Easy to operate
Profitable to install
Strongly constructed of heavy metal

THE VULCAN CO., LIMITED

London - - Canada

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HERCULES HAS THE POWER

To dissolve and remove the most stubborn obstructions from drain pipes. It contains all the necessary ingredients that clear all stoppages.

Use It Regularly!

Stop the daily worries when on the job and use

HERCULES DRAIN PIPE SOLVENT

Send for a sample can at once.

Hercules Chemical Co. Inc.
440 Washington St., New York City

W. H. Cunningham & Hill,
Limited
269 Richmond St. W., Toronto, Ont.,
Sole Agents for Dominion of Canada

Choose The Right Tool

You can't expect a cheap, inefficient wrench to hold and turn rusted pipe or fittings. It's bound to slip or break.

WILLIAMS' STILLSON WRENCH is dependable; it is made for heavy duty. Drop-forged from special steel, carefully hardened and tempered, its sturdy strength is proof against the knocks and strains of hard service. The tough teeth retain their sharpness; they "bite" instantly, yet release readily.

For grip, power and endurance, choose Williams' Stillson. Wood and Steel Handle patterns — eight sizes, 6 to 48 inches. Made in Canada.

J. H. WILLIAMS & CO., LTD.

"The Wrench People"

77 Thorold Rd., St. Catharines, Ontario

WROUGHT PIPE

Suitable for the approaching period of building activity, road construction, etc. This is a line of great importance in making successful, profitable contracts. Our C. T. Brand of Wrought Pipe has been

THOROUGHLY INSPECTED

by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes ⅛-in. to 4-in. Black or Galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your Jobber for C. T. Brand Wrought Pipe

Canadian Tube and Steel Products Co., Ltd.

Operating Canadian Tube and Iron Co., Limited

Works at Lachine Canal, Montreal

Tapped Closet Bend

Easier to attach

More permanent

Cost less

The Martin Portable Vise Stand

Light in weight—only fifty pounds

Can be carried anywhere without inconvenience.

Put up in two seconds; no bolts, screws or fastenings needed.

Use the Martin Portable Vise Stand where pipe or conduit must be bent, cut or threaded.

10 days free trial.

If your jobber can't supply you—write us.

H. P. MARTIN & SONS

803 W. 12th Street OWENSBORO, Ky.

NO. 1 "TWEED"
Sanitary Closet with mahogany finished seat and lid with nickel-plated hinges.
The special "Tweed" chemical used in connection with the closet, destroys every trace of odor. Easily installed, as no plumbing required.

Out-of-Town Business

Only those who have to live the year around in a locality without city conveniences realize the hardships involved, and it is among these that you can do a profitable business with the

"TWEED" SANITARY CLOSET

A city convenience at a fraction of the cost—anybody can afford one. Compactly packed for shipment and easily handled.

We also make an attractive line of "Tweed" Baths and other home conveniences.

Write for price lists and literature

Steel Trough & Machine Co., Ltd.
TWEED, ONT., CANADA
LOUIS A. PAYETTE.
304 University St., Montreal
Quebec and Eastern Representative

Get Acquainted During "Ex" Weeks

Hundreds of out-of-town Sanitary Engineers will be in Toronto during Exhibition. A great many will have some spare time on their hands which could not be better employed than by personal visits to the offices and plants of manufacturers and jobbers of plumbing and heating equipment.

The educational value of visits of this sort will be high, and the personal contact that will be established will lead to a better understanding and co-operation all 'round.

In order to facilitate this "get together" spirit, Sanitary Engineer will, in the August 15th issue, publish a map of the City of Toronto—showing the best hotels and stopping places as well as the location of the different manufacturers—just what car to take to get there and where to get off.

There will also be a list of exhibitors and a survey of what you may expect to see at the different exhibits at the Fair.

Let's all get acquainted during the Exhibition.

PUSSYFOOT CLOSET TANK
OAK FINISH TYPE S.

The Attractive Design of

'Pussyfoot' Closet Tanks

Adds Finish to Your Bath Room

OUR NEW VALVE

Patent Applied

Gives additional satisfaction
with its

QUICK ACTION
SILENT OPERATION
EASE OF ADJUSTMENT

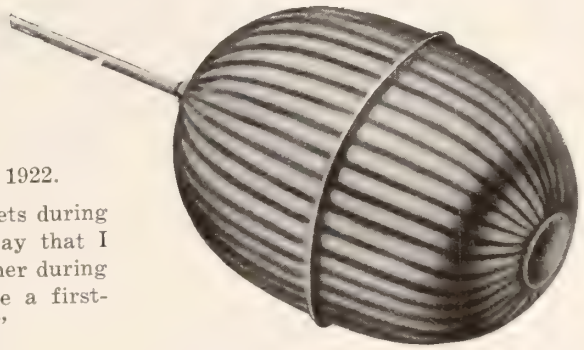
Every valve is tested under 150 lbs. pressure before it leaves our factory.

Simple—
Silent—
Serviceable

Read what ONE of our satisfied customers says :

Windsor, Ont.,
July 18th, 1922.

"I have used a great many Pussyfoot Closets during the past 18 months and am pleased to say that I have had no trouble with these closets, either during or after installation. I found them to be a first-class and well-finished Canadian product."



Order Pussyfoot from your jobber every time

THE CANADA METAL COMPANY
LIMITED

Montreal Hamilton Toronto Winnipeg Vancouver

Look it Over!

Have you ever in all your years of experience in the plumbing business seen a more attractive closet combination than the one shown above—the New Design Vitro?

We couldn't improve the fittings so we improved the shape.

Specify **"Vitro"** for all round satisfaction.

Galt Brass Company, Limited

GALT - CANADA

Every Tank Tested

VITRO NO TROUBLE TANK

Every Part Perfect

Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XVI. PUBLICATION OFFICE, TORONTO, SEPTEMBER 1, 1922 No. 17

The Tank That Stays White

The attractiveness of a well appointed bathroom is often marred by a discolored tank.

Our Vitreous China Closet Combination is a fixture **that retains its snowy whiteness indefinitely.** It is easily kept spotlessly clean with a damp cloth. The tank and bowl are beautifully designed and are made of the same material — vitreous china.

The best grade of red brass is used for the internal fittings and all connections are machined to standards to facilitate installation.

All good jobbers carry "Emco" plumbing supplies and sanitary fixtures.

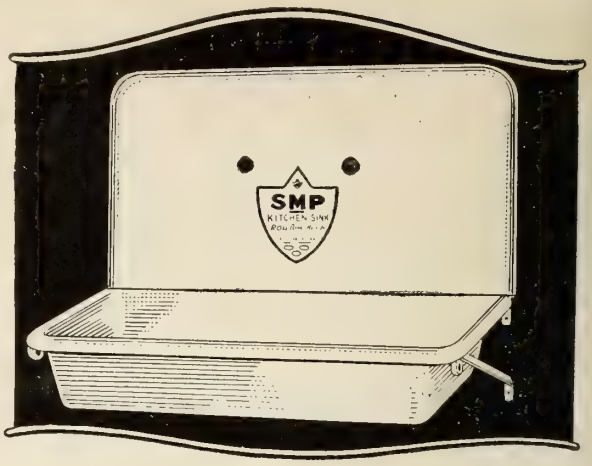
"An 'Emco' Combination is a Masterly Creation"

Empire Brass Manufacturing Co.

LIMITED

London and Toronto, Canada

Are You Following Up The Building Boom?



All over Canada thousands of new homes are being built. Every one of these houses requires a sink—some houses require more than one. Thousands of other homes are being remodelled and renovated. A great many of these require sinks.

Are you following up the building boom? Are you getting a good share of the business? Have you realized what splendid possibilities there are in **SMP** White Enameled Roll Rim Sinks?

Price is $9.90 Ex-Warehouse, Toronto. Compare this price with others. It weighs only 58 lbs., less than half the weight of other sinks. Figure out what you would save in freight in a year's time.

SMP *White Enameled* ROLL RIM SINKS

Each **SMP** Roll Rim Sink is packed complete ready for shipment including nickel-plated brass strainer, special adjustable brackets and couplings for iron and lead pipes. Size 18 inches by 30 inches with a back 16 inches high. Made of 16-gauge Armco Rust Resisting Iron over which are fused three coats of a very special enamel. Place your order at once. **SMP** White Enameled Roll Rim Sinks are in great demand.

SHIPMENTS MADE PROMPTLY

SMP QUALITY TRADE MARK

THE SHEET METAL PRODUCTS Co OF CANADA LIMITED

MONTREAL EDMONTON TORONTO VANCOUVER WINNIPEG CALGARY

SMP QUALITY TRADE MARK

TRADE B.O.T. MARK

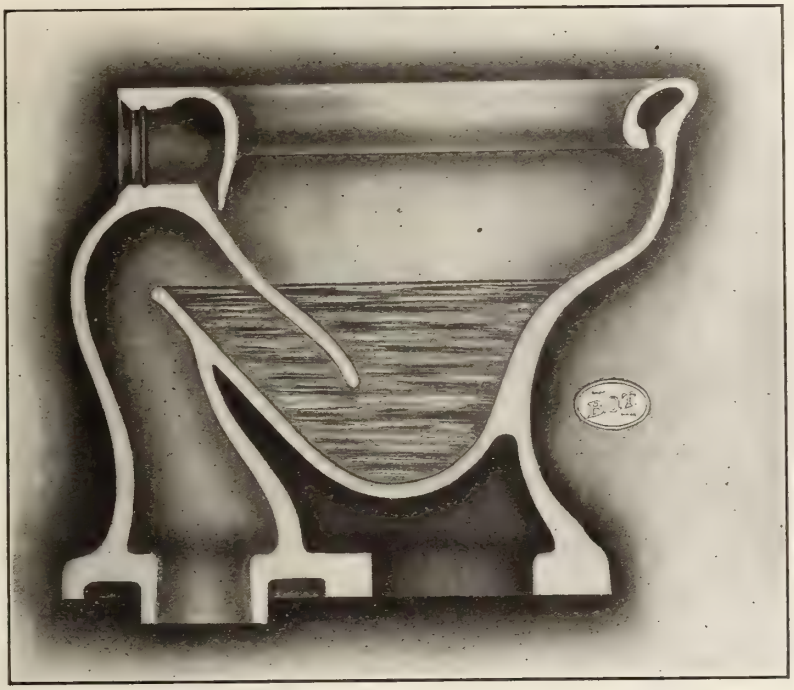
Syphon Closets

"B.O.T."
CLOSET TANKS

GOLDEN OAK
MAHOGANY
VITREOUS CHINA
ENAMELLED IRON

"B.O.T."
TANK FITTINGS
BALLCOCK
FLUSH VALVE
LEVER

"B.O.T."
CLOSET BOWLS
No. 375 REGULAR
No. 378 EXTENDED LIP



"B.O.T."
CLOSET SEATS

Round Saddle
Horse-Shoe
Extended Lip
Two-Piece

IN

Golden Oak
Mahogany
Blanco Sheet
Covered
Finishes.

WITH

N. P. Bar Hinge
N. P. H. S. Bar Hinge.
N. P. Reinforcing Bar Hinge
N. P. Ariston Hinge
Pat. Glos-Ruff Hinge.

STANDARDS OF PERFECTION

"B.O.T." Products Stand all Tests—Quality - Efficiency - Service

CANADIAN BRASS COMPANY, LIMITED

GALT - TORONTO

Billy

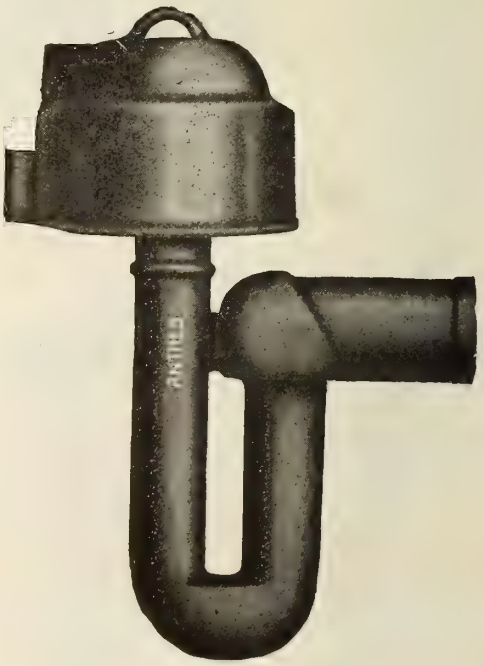
Spreading Propaganda

When Billy started in last spring spreading propaganda on better sanitation in the rural districts, he was pretty well sold on the idea himself and the possibilities that it offered. He knew that business would roll his way in proportion to the amount of effort he put into his sales endeavor. What Billy didn't know, was the fact that people on the whole knew very little about modern sanitation and still less the menace to health and life that they were daily in contact with in the shape of the outdoor toilet and other unsanitary inconveniences to be seen around the average farm.

Anyway, Billy took every opportunity to preach the gospel of better health and living conditions and how this could be accomplished by the installation of a septic tank for the disposal of sewage.

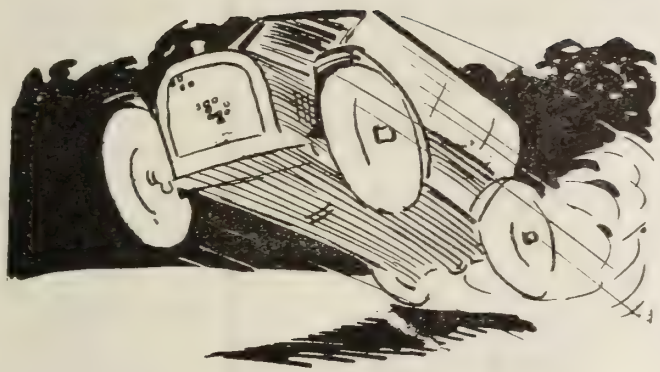
Billy had his arguments down pat. He knew for example that typhoid and malaria and several other malicious diseases were directly caused by unsanitary conditions.

He knew that the city dweller lives 2.6 years longer than the rural dweller due to the fact that the former enjoys modern



Billy gets around to all the rural homes

Cashes In



Billy covers the ground

sanitary equipment. He asked them how they expected to keep the young folks on the farm under such conditions. He told Mother that it was a crime that she should have to have water from the old pump at her age and told Father that he ought to be ashamed of himself to allow it. He pictured the comfort of an indoor toilet as against that trip to the outhouse at the back of the lot at 30 below zero.

And he told them a lot more. People were impressed with the propaganda Billy handed them. They talked it over among themselves and argued about it but finally had to admit that Billy was right.

And now Billy's rushing around like a wild man trying to fill the orders that he has created—septic tanks—water systems—plumbing fixtures—are selling like hot cakes.

Billy knows when he sells a septic tank that he'll sell a water system and plumbing fixtures to go with it.

Are you cashing in on your territory like Billy? Farmers have their crop money safely in the bank now. With winter coming on the rural dweller will listen attentively to your proposition.

Get after this business to-day.

Anthes Foundry
Limited
Toronto and Winnipeg

Manufacturers of
Cast Iron Soil Pipe and Fittings

Making 'Em dissatisfied with the Out-door Toilet

The Salesman Behind

One of the illustrations used in "Standard" advertising

Behind The Salesman The Counter

The Sanitary Engineer buys goods and puts them together with himself behind the counter of his display room. Something more than this however is needed to start plumbing fixtures moving in money-making quantities.

We are selling thousands of customers daily on the merits of "better bath rooms" before the customer enters your store. Behind your sales efforts, we put the manifold selling power of hundreds of thousands of salesmen—national magazine advertising. Persistent salesmen these—they are on the job 24 hours a day carrying their appeal to the prospect whenever he opens the magazine; persuasive, too—their unrivalled ability to picture the product in lifelike, every day use makes wordy selling arguments unnecessary.

This is one of Standard's big efforts to create more business for you. In national periodicals with tremendous country-wide circulation, the Standard message advocating the "better bath room" idea is daily driving home in the public mind the necessity for "building the house around the bath room."

Standard Sanitary Mfg. Co.
Limited

General Office and Factory: Royce and Lansdowne Aves., Toronto, Ont.

Toronto Store:
55-59 Richmond Street East

Winnipeg Showrooms:
145 Market Street East

Montreal:
New Birks Bldg.

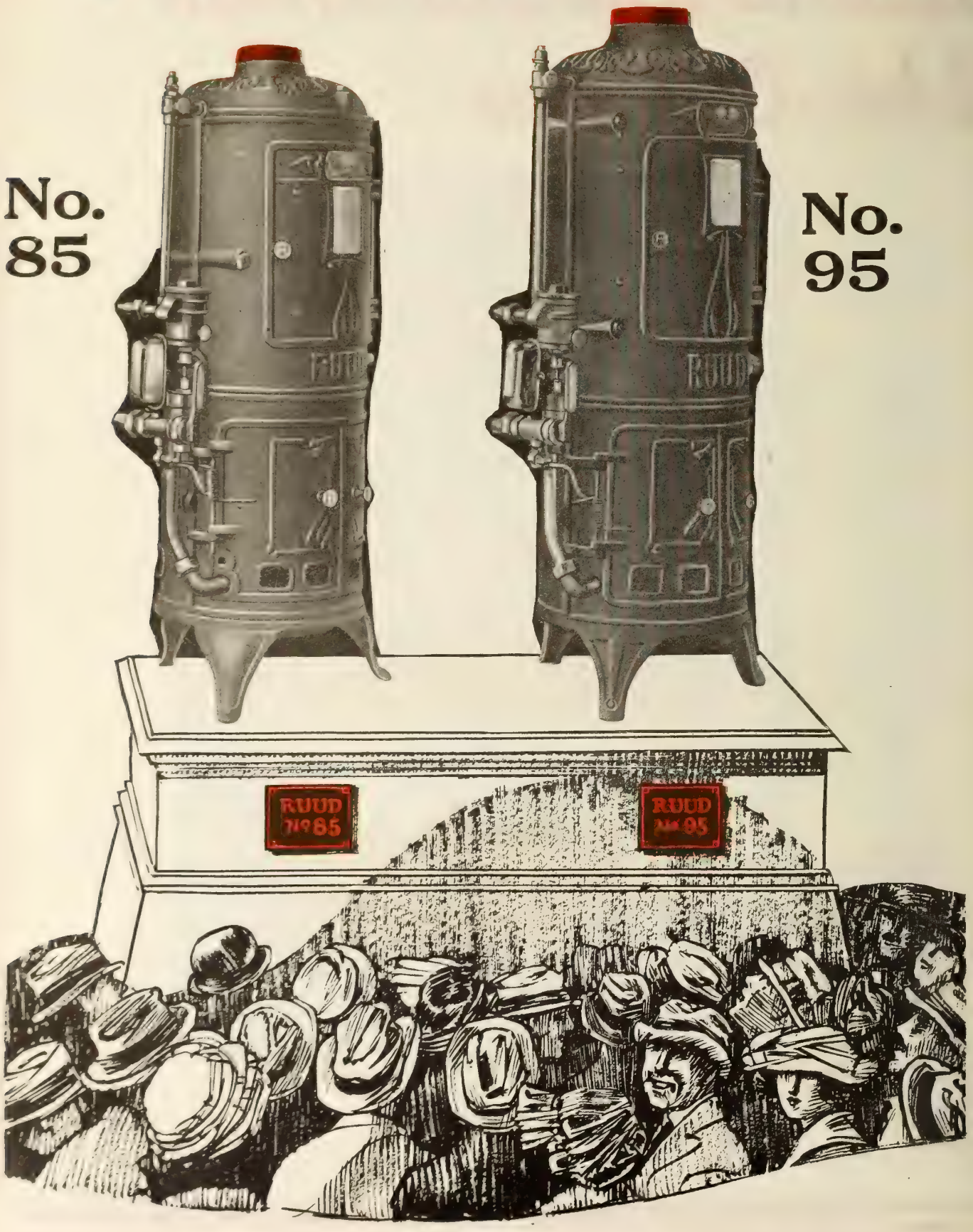
Calgary:
354 11th Ave. West

Hamilton Store:
26-28 Jackson Street West

Vancouver:
860 Cambie Street

"MADE IN CANADA"

The Red Collar



Identifies the New Line of RUUD

Automatic Water Heaters for the Small Home

SCORE another bullseye for Edwin Ruud and his engineers.

Here is a real engineering triumph. By perfecting the new super-value Ruud 85 and 95, they have at last brought Perfect and Permanent Hot Water Service within the reach of the small home owner.

The Ruud 85 and 95 are especially built for small home use; they meet small home requirements; they fit the small home pocketbook; they place in your hands the ammunition to go after the small home market, heretofore only a prospect for a tank heater.

Remember this—the Ruud 85 and 95 are built down only in capacity, not in quality.

Design, workmanship and materials are of the same Ruud Super-Standard as used in the larger sizes.

Continuous, satisfactory performance is guaranteed by a water heater experience ranging over a quarter of a century.

See the new super-value Ruud 85 and 95 at any of our branches or write direct for an illustrated catalog and special display prices.

Ruud Manufacturing Company
474 Bathurst St., Toronto, Ont.

¾ in. Gas Line

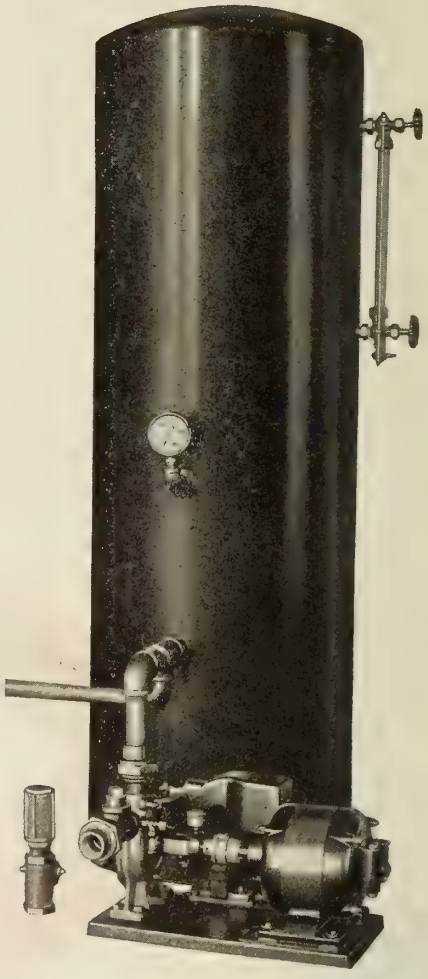
10 Light Meter

Water is one of God's best gifts to man

Water means Cleanliness, Sanitation and Health

The great movement of city people to more pleasant and healthful surroundings in the suburban districts, and the determination of thinking men on the farm to raise the standard of living and provide essential conveniences and comforts in the rural home in order to safeguard this vital industry give rise to an ever increasing demand for pumping equipments.

WATER you doing, Mr. Man, to play your part? Come alive. Invest 3 cents and write us for full particulars regarding our new complete pumping system, at



Pre-War Prices

$99.00 and up

Westco Pumps Limited

TORONTO - ONTARIO

SANITARY ENGINEER
PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907 PUBLISHED TWICE MONTHLY

Vol. XVI. PUBLICATION OFFICE: TORONTO, SEPTEMBER 1, 1922 No. 17

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The MacLean Publishing Company, Ltd.

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H. V. TYRRELL, *General Manager.*

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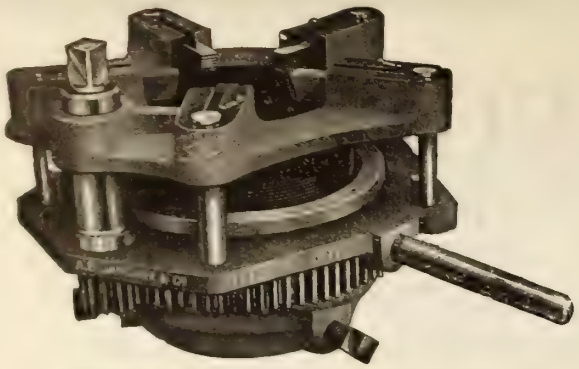

"Toledo" Geared Adjustable Threading Tool, No. 2½. Capacity 2½ to 6 in. inclusive. Weight, 120 lbs.

Made in Canada

REGISTERED J TRADE MARK

One Man Does the Work of Two

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Plumbers Object to Paying Stamp Tax

New Stamp Tax Regulations in Effect Since August 1 Now Bring About Situation in Which Attempt is Made to Compel Debtor to Pay the Stamp Tax on Drafts—Plumbers Oppose This Unless They Ask to be Drawn on

EDITOR'S NOTE:—In connection with the application of the Stamp Taxes since August 1 a situation has arisen on which a variation of policy is being followed in the trade. This condition concerns the payment of the tax on drafts. Certain distributors claim that the debtor should pay the stamp tax on a draft which the drawer has had to affix to the draft before putting it through the bank. Their claim is based on the fact that the debtor would pay the stamp tax himself if he paid the account by cheque and that the fact that the beneficiary draws a draft on the debtor for the settlement of an account is no reason why he should pay the stamp tax. Opinions of plumbers indicate that the majority of them think that unless they ask specially to be drawn on, or if they are drawn on before the expiry date of the terms of the order they should not be asked to pay stamp tax as the drawer is taking advantage of an option and is the one to benefit. Following are some detailed opinions on the matter as given by those in various branches of the industry:

"I THINK if the draft is made by the firm selling the goods prior to the expiry of the sale terms that the stamps on the draft should be paid for by the party issuing the draft. If settlement is deferred by debtor until the due date of the bill he would necessarily forward his cheque with the stamps attached. I feel that the expenses incurred in the collection of accounts should be estimated and included in the overhead expense of the manufacturer or jobber and added into the selling price of the goods," said one operator.

"With the various taxes now in effect on articles of stated re-sale values the margin of profit has been cut very fine and the payment of additional taxation would necessarily come out of net profits, which at the present time are much below normal and show very poor return for the investment, initiative and energy put into business by the average retailer."

Not Wise as General Principle

A Toronto wholesale firm discussing the subject with Sanitary Engineer, pointed out that no steps were being taken to collect the stamp tax on drafts, and did not think it wise to do so as a general principle as it was a cost of collection which if it assumed large proportions could be added into overhead costs. It was agreed that the drawer of the draft was the one to benefit and as such should pay the tax unless the debtor asked particularly to be drawn on or the draft principle had to be adopted as a final resort to force payment.

Fifty per cent. of this wholesaler's business was said to be done now by drafts on varying terms according to established practice. Very few are returned compared with the number used.

Well Repaid for Draft Expense

"The jobbers or the manufacturers are the logical people to pay for these stamps; they can pass it on to the public without a loss, better than if the distributor bears it direct. Speaking of the lax method of collection in reference to drafts, I feel that in the majority of cases the manufacturer or the jobber is well repaid for any expense he has in drafts by the additional promptness with which he gets in his money. If the retailer asks jobbers or manufacturers to draw on him, the retailer should pay the stamp tax. If however, the jobber or manufacturer draws to force collection, they should pay the tax themselves. The majority practice should govern."

That manufacturers and wholesalers should be willing to stand their extra share of taxation in connection with stamps on drafts is the opinion of another operator, who states:—

"The draft system of collecting accounts must be a decided advantage to them in that it secures more prompt payment, therefore the extra tax should be cheerfully absorbed by manufacturer or wholesaler. The increase in Sales Tax recently put in force is automatically being paid by the retailer and this additional load of stamp tax in all fairness should not be passed on the already helpless retailer."

Charge on Renewal Drafts

Another opinion is as follows:

"I think the wholesalers and manufacturers should be above asking the operators to pay this small fractional percentage on good accounts of those who pay promptly. In the case of renewals of drafts I think the creditor would be fairly entitled to add the cost of such renewal to a second draft. I consider it is not good business policy for the wholesaler to endeavor to pass on to the retailers too many small irritating items of expense."

Some important points are brought out in this discussion in the following opinion:

"It seems to me, that there is a very evident desire on the part of jobbers and manufacturers, to put over everything possible. 'Passing the Buck' as it were.

"To my mind the intention of this tax is to have each individual business bear its proper relation in respect to the tax, and not that it shall be passed on and somebody else be made to pay. This seems to be the idea of the above named concerns, e. g. make the other fellow pay.

(Continued on page 40)

Says Gas Will Be Fuel Of Future

Changes in Industry Outlined to Annual Conference of the Gas Association in Hamilton by Floyd W. Parsons—Solve Question of Avoiding Burning of Raw Coal

HAMILTON, ONT.—A two-day conference of the Gas Association of Canada was held at the Royal Connaught Hotel with C. S. Bagg of Montreal, President, in the chair. The morning was spent largely in formalities, but during the session it was stated that the public might be assured that though there was a coal shortage, there would be no serious curtailment of the gas supply.

The delegates were welcomed to the city by Mayor Coppley, who said he hoped their two-day stay here would be pleasant and profitable. President S. C. Bagg of Montreal gave his annual address during the morning, and referred to the rapid development of the association. As an indication of this he stated that the Hydro-electric Power Commission of Ontario was now a member of it. He closed by stating that closer co-operation between the producing company and the consumer was necessary.

In the evening the annual banquet and dance were held, the ladies who accompanied the delegates being present. J. J. Humphrys of Montreal proposed a toast to Hamilton. Controller Jutten responded. The address of the evening was by Folyd W. Parsons of New York, whose subject was "The Future of the Gas Business."

Houses heated entirely by gas; locomotives operated exclusively by electricity; banishment of soot and ashes from the atmosphere and streets of the cities; burning of all coal in centralized gas plants, where every available atom of energy can be derived from the fuel, and where by-products can be properly controlled and collected; this was the futuristic, but not impossible picture which was painted by Floyd W. Parsons, New York fuel expert who addressed the annual dinner of the Canadian Gas Association.

Tension in the fuel situation, which is very real, in spite of everything which the newspapers say to the contrary, is one thing which will hasten the adoption of such a system of heating and power supply, the speaker thought. His address was as follows:—

"We have traveled a long way from the spinning wheel, the stage coach and the log fire. In those days each man shifted for himself.

"If I were to describe the present age, I would refer to it as the gas age. The atmospheric gases will be used, not only to support our mode of travel, but will also supply oxygen and nitrogen, of which we now use but a small part.

"The time is coming when steel companies will have to supply cheaper oxygen. Its price will have to drop from a cent a foot to a fraction.

"Many gas manufacturers cannot see the use of this element in their business, but I am convinced that when oxygen can be provided for a few cents a thousand feet, its use in the arts will be immense.

Future Assured

"The future of manufactured gas is as assured as the longevity of the motor car. As surely as one assigns to the scrap pile the worn-out machine, so will the days of the future be the gas age!

"Waste of fuel, as sooty smoke, must stop. This process is inefficient. Fuel will soon be supplied as gas only.

"Large plants may have to be scrapped but the change will come. It is too bad that so much of development work is hindered by political operations."

Dealing with the supply of raw material for the gas fuel, which he holds as his ideal, 'let us at once dismiss all raw materials but bituminous coal,' the speaker said. 'Anthracite and similar substances are luxuries in the gas business.

"In spite of all that has been said to the contrary, I am sure that the coming winter is going to be one of unprecedented distress from the fuel point of view.

"But gas manufacturers here, as in the United States, will get coal. They get first call, but the price will be high.

"There should be a temporary measure to secure relief from contracts and franchises.

"I was amazed to read in newspapers to-day the statement that owing to reopening of mines in New York state all our fuel troubles are over. This is nonsense. The situation is such that industries will be handicapped this winter to a greater extent than they were even during the war.

"The present boom in the stock market is an inflation which cannot last. Do not listen to the stories of speculators and stock sellers.

"Do not deceive yourselves. Times are serious. We have passed through a period of reconstruction which has failed to reconstruct.

"I fail to see how good times can be based on 50 per cent. production with double cost per unit.

"It may be good economics for a few but it is a ruinous policy to apply to an entire nation.

Receipt Tax Being Framed On Basis of English Act

"THERE isn't a chance in the world of the tax on receipts being modified or abolished before the next session of parliament, and it is doubtful if any attempt will be made even then to interfere with it," said a high official of the Department of Customs and Excise to the Ottawa representative of Sanitary Engineer a few days ago.

The official's attention was drawn to the fact that retailers in convention in various parts of the Dominion were placing themselves on record as being strongly opposed to the new law, but he simply smiled a knowing smile and said it was only natural that men should kick over the traces when burdened with a new form of taxation.

"The country needs the money," he said, "and we are satisfied that quite a lot will be raised by means of the receipt tax."

"Well then what about the regulations that are to govern the new tax?" was the next question.

"They will be issued in plenty of time," replied the official. "I expect it will be about the middle of October before we have them ready. You know we are conducting a thorough investigation of the operation of the receipt tax in the old country, and it is more than likely that we will adopt regulations similar to those in existence there. The receipt tax has been in force in England for several years and has been working out very satisfactorily."

The official then switched the conversation to the stamp and sales tax and waxed enthusiastic over the results which have been secured of late. "The amendment to the stamp tax has only been in force a few days," he said, "but from the time it went into force on the first of August, until August 12th there was a 400 per cent. increase in revenue, over the corresponding period in July. Taking the same periods for comparative purposes, there has been a fifty per cent. increase in the sales tax, while the revenue produced by the combined taxes (stamp and sales) has been exactly double that collected in the first ten days in July."

Using the Windows for Fall Display

Here is a neat window display which may suggest some ideas to other plumbers, by John A. Lillie, Toronto. A model bathroom on a small scale is shown in the centre revealing the fixtures in proportion. At this season when people's thoughts are turning to heating problems it is well to show some radiation and other heating equipment and use a card or two to drive home some message about taking advantage of the present opportunity to have heating plants examined. The pedestal lavatory shown on the left is a worthy representative of the plumbing equipment to be procured from this shop.

"Prices are on the upward trend. Eevrything is going up, and no product will feel the jump more than the steel business. Small steel manufacturers will take advantage of the state of the market to jump their prices.

"It is for this reason that I have been advising the purchase of coal by manufacturers. I think I may take credit for the statement made a short time ago that gas manufacturers in the United States had a supply of coal to last 51 days.

Steel About to Jump

"Buy all the finished and unfinished steel you can, if you are likely to need it. Don't forget that it takes four tons of coal to make a ton of steel, hence prices must rise.

"'Why," the speaker declared, "we are just beginning to feel the effects of the war.

"A result of the forthcoming winter is going to be a change in the minds of the people. They will have to use soft coal, because no matter what happens in the meantime, the United States is going to be short 30,000,000 tons of anthracite. The soft coal which will have to be burned is going to mean a financial loss owing to the smoke nuisance, as well as a bad thing for public health.

"Women who have been used to burning hard coal will have to use bituminous coal. You can't shut out the soot, even if you clamp your windows.

"It is this situation of which the gas manufacturers will have to take advantage. Teach them the advantage of burning gas rather than soft coal. If you don't seize this opportunity the gas business is going to miss the greatest chance it ever had.

"The real future of the gas industry will not be assured until the people realize that the burning of raw coal is wrong, wasteful, uneconomic. Coke and gas are what should be used. If you could introduce these two into the homes you could never bring back the burning of anthracite.

Do Away With Coal

"Coke and gas can be used now domestically and in the industries, whereever coal is used.

"Get your start in the industries and then press into the domestic field. Don't be anxious to break into the big towns, where a lot of plant and apparatus would have to be scrapped. There are many small towns, where gas can be introduced on a large scale without a great deal of expense.

"Coke can be used on locomotives with but little change.

"The only thing which prevents this development at the present time is the high cost of manufactured gas. You may think this an insurmountable obstacle, but I am convinced that present conditions will introduce within a few months cheaper methods of making gas.

"A cheap process is now working successfully in Germany, and the plan is being examined for application to this country. An Ohio town has been able to produce gas for the rate of 10 cents a thousand, in the holder.

Abandon Old Ideas

"Use of a gas of a lower calorific power will become popular, in spite of fancied objections," Mr. Parsons reports.

"Gas will be sold as so many British thermal units for a dollar.

"We have a huge supply of electrical current, white coal, but all of this will shortly be used up for power in the industries. Gas is the coming heating medium.

"Companies may sell electrical power for next to nothing just now, but the situation is entirely temporary; don't you worry.

"Electricity at one cent per kilowatt hour, a very low rate, is the equivalent of coal at $40 a ton.

"Electrical heating and cooking will pass with the years. Electrical appliances are now almost 100 per cent. efficient, and they don't compare very favorably with gas. What chance will they have when gas appliances become more efficient? Just as surely as you get cheap electricity for cooking, the money will come out of your own pockets as taxes.

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The Salient Features of the Gas Water Heater Business

Address by Oscar H. Fogg, Secretary-Manager American Gas Association before Annual Convention of the Gas Association of Canada, Hamilton, Ont.

IN THIS paper I have meant to present in brief form some of the salient features of the gas water heater business and the points most deserving of consideration rather than to offer an extended detailed treatment of the subject.

The fact that water heating is one of the gas industry's most desirable and easily obtainable unsold fields is now conceded by all. Nevertheless, let us analyze this statement for a moment and see why it is so.

It is desirable from the standpoint of our customers, because it will place at their disposal the most efficient, economical, satisfactory and convenient method of supplying hot water now a universally recognized necessity for sanitary, healthy life. It is desirable from the standpoint of the industry for many reasons. First, it will mean large volume, all-the-year-round-business, which, it cannot be denied, is the most attractive of all. Second, it can be accomplished without the necessity of great extension of mains and service, which is a most important consideration. The mains and service supplying 9,000,000 customers are now there, but they now supply only 1,500,000 water heaters of all types. The remaining 7,500,000 meters represent a field ready for cultivation—a field all ploughed and ready for sowing. Taking a conservative figure of 3,000,000 out of the 7,500,000 as being live prospects, and allowing the nominal figure of 40,000 cu. ft. of gas per year per prospect gives us the astonishing additional yearly sendout of 120,000,000,000 cu. ft. This alone would mean an increased gross gas sales over the year 1920 of more than 33-1/3 per cent. And third, it is desirable because it will materially strengthen that goodwill toward the public utility which, I am happy to say, is slowly becoming more and more evident. When "gas hot water" is as universal as "cook with gas" it will be another essential service supplied by our industry that will surely reap a harvest of goodwill. So much for the principal points of desirability to our industry.

Helped By Bath-A-Day Campaign

When I said that "gas hot water" besides being the most desirable, was the most easily obtainable unsold field, I used the words advisedly. First, it offers the least resistance due to the very fact that those mains and services just referred to are already in place. Second, it is greatly facilitated by the national drive "A Bath A Day" now being instituted by the plumbers, plumbing accessory and allied trades. Also, the successful intensive efforts being made by our electric friends with their washing machines, both clothes and dishwashing, make essential a convenient, efficient and satisfactory method of heating water in order to secure the maximum saving of labor from these machines. In these ways "gas hot water" should secure a most helpful exterior impetus that was lacking, for example, when "cook with gas" was in its infancy. And last, the time is ripe for just such an effort. Business has begun to mend and the buying public has begun to come back into the market. Regulatory bodies have seen the injustice done the public utilities in the past and the readjustment of rates and standards which has followed has placed the utilities in a position to resume active commercial and promotive effort.

Should Equal Gas Cooking

But, even with the advantages present at hand, do not conclude that "gas hot water" can be successfully and universally carried "over the top" without considerable effort and concentration. Even with what initial advantages it may have both on the exterior and the interior, I believe it will require continuous and persistent effort of the hardest kind to place it side by side with gas cooking, and that is where it belongs. Like this latter, which was never accomplished within a period that can be measured in the terms of a "campaign" or a "sales week," the use of gas for water heating can never be developed to its fullest extent by sporadic spurts no matter how intense each one may be. If we ever wish to be able to say that water is heated by gas in practically every home within the boundaries of our service mains, just as the cooking is now done, we must make up our minds to take off our coats, roll up our sleeves and keep them rolled up until we have reached this goal.

If we do this, the gas industry will receive an impetus in sales of gas and service rendered to our customers that cannot be measured. So thoroughly convinced am I of this that I will dwell no longer on why it should be done but will endeavor to give you what thoughts I have on the details of accomplishment. I cannot hope to go into minute details, for such an attempt would be foolish when you consider the many and varied local-equations which must enter into a sales effort. But I can touch more or less broadly on some of those details which I hope may be helpful or at least suggestive.

Automatic Heating Best

First, let us consider what means we have at hand to work with. And right here let me say that in all that I have said, and in all that follows, when I refer to water heating by gas I mean "automatic" water heating by gas.

There is no question in my mind but that this is the best means available of making our attack. Automatic water heating is unquestionably the most satisfactory service for our customers, and it is with this type of heating equipment that we should carry on this work.

Fortunately for us, the automatic water heater has, in recent years, been developed to a high stage of efficient and economic operation. Moreover, the water heater manufacturers have perfected a fairly complete line of types, sizes and designs to cover any requirement that will be met by the salesman on his district. Small, completely assembled units having a storage capacity ranging from about twenty gallons to sixty gallons and with a heating capacity of approximately forty gallons per hour are now made by practically all of the larger water heater manufacturing concerns. In addition to this, cast iron hot water and steam boilers which operate with perfect satisfaction under automatic thermostatic control have made large installations possible. Single units of this kind are made with hourly heating capacities of practically 1,000 gallons per hour. This, when used in conjunction with ample storage, allows a single unit to satisfactorily take care of the requirements of some of our largest office buildings as well as medium sized hotels and institutions.

I do not believe it is necessary to mention the sizes and capacities of the instantaneous heaters which no doubt must be familiar to all.

A Necessary Article

Consequently, we have at our disposal at the very start the appliances to do the work. In fact, to use a comparison previously made, such have been the developments made in this type of appliance that the automatic water heater to-day, is to the water heating field as the cabinet range with its attractive appearance and heat control is to the cooking field. The day of the hot plate is indeed past, and, to carry the comparison further, so is the day of the tank or circulating heater, for at present the tank heater is in the same relative place to gas water heating as the cooker is to gas cooking. No gas company would now think of commercially pushing the cooker and neither should they longer consider the tank heater as a principal means with which to increase the sale of gas for water heating.

With the appliances at hand naturally the next consideration is the manner of their use. On this point I feel very strongly. No matter how perfect an appliance,

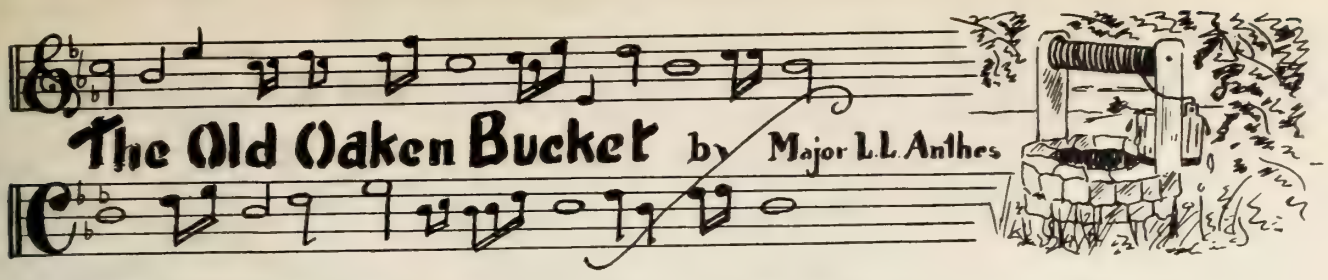
(Continued on page 16)

WHAT DO YOU THINK OF THE STAMP TAX?

In this issue will be found the opinions of a number of manufacturers, wholesalers and operators in connection with the application of the increased Stamp Taxes since August 1. The tendency on the part of certain manufacturers and wholesalers is to pass on the cost of the stamps applied on drafts, to those on whom the drafts are drawn.

This is one of the most important matters affecting operators' interests which has been up for discussion for some time and any idea which you can promote to offset such action will help the cause.

Write a letter setting forth your views to The Editor, Sanitary Engineer, 153 University Ave., Toronto, Ont.



THE old oaken bucket,
The moss-covered bucket,
The old oaken bucket,
That hangs by the well.

Oh happy memories of distant youth and early childhood!

Does not the refrain "The Old Oaken Bucket" awake a train of thought that almost makes you feel like a "two-year-old" again? First the lisping lips of babyhood and then the happy hours of budding manhood. How three or four of the "young bloods" would gather around the old "gas lamp-post" in the modest hours of early morn and sing the good old refrain in close harmony, or harmony as close as their half-lit condition would allow!

"Don't you remember? We all did it."

Treated to New Words

But of late years the old "harmony" has been treated to new words, and now when we attend a so-called "social night" instead of getting the "Old Oaken Bucket," we get "waterlogged" and sing "The Old Family Tooth-brush."

These are the words:—

"The old family tooth-brush,
The old family tooth-brush,
The old family tooth-brush,
That hangs by the sink."

"That hangs by the sink," is all very well; but what if there is no sink? No sink—no tooth-brush! There you have it in a nut-shell.

Not Getting Much Joy

"What about the sad-looking woman in the picture?"

"Does she look as if she got much joy out of life?"

"No."

"Has she a sink?" "No!"

"Is there a family tooth-brush?"

"No!"

As a sink is to a well-ordered house so is a tooth-brush to a nice well-kept woman.

"Does the lady in the picture display a double row of pearly ivories?"

"She does not."

"The Sunshine of Love

Poets have said that "a woman's smile" is "the sunshine of love."

Is the lady smiling?

You can see she is not. In fact she has a perpetual grouch and shows it. What does she know about love?

Look at her!

"Would you want to meet her on a dark night in a lonely place?"

"I should say not!"

Most women at least smile when they are having their pictures taken. This one does not.

Forgotten How to Smile

She has forgotten how to smile.

"And why is this?"

Merely because there is no sink in the kitchen and no tooth-brush hanging in the reflected enamel rays.

It is a pity! of course it's a pity.

She is somebody's mother—the boys have probably drifted to the city—who knows—they may be rolling in wealth—selling suburban real estate or "picking out the good ones."

"But what about mother? Do they ever think of her down on the farm?"

"Alas I fear not."

Her unhappy plight calls to mind the song, Dan Daly the eccentric comedian used to sing in the long ago. It was entitled: "I Love To See My Poor Old Mother Work."

It is a pathetic title and the words and music were just as pathetic.

Cannot these thoughtless youths be influenced to think of poor old mother in a more charitable way?

How to Make Her Happy

Just think of the joy that would warm the poor old lady's heart if on her birthday she would get a joint cablegram from her "boys," reading something like this:—

"Many happy returns, mother, we are sending you a sink and a tooth-brush for your birthday.

The Boys."

Don't you think it would open a new world to her?

No more toilsome trips to the pump with the "Old Oaken Bucket,"—no more bent back—no more knotted rheumatic fingers—no more wet and chilblained feet!

Don't you think she would appreciate it?

Why she would stand at that sink all day long, washing everything in sight and brushing teeth when she got tired washing.

Life Would Be Real

Life would soon become real to her, and she would no longer be afraid to smile.

Her husband would fall in love with her again and would want to buy her something to celebrate the occasion.

And what better could he buy her than a complete bathroom outfit?

Then life would begin all over again for the old folks. They would only then know what the real comforts of home were.

The plumber can be the Fairy Prince to bring happiness to such as this poor individual and bring a smile such as poets speak of as the "sunshin of love." Read how it can be done.

Mother could move her tooth-brush to a sanitary holder in the new bathroom and father could sink his teeth in luscious early bantam corn raised on his own new Disposal Field.

"The Old Oaken Bucket" would be moved to the front door and a blooming Oleander planted therein to emphasize "The Home Beautiful."

Just think how easy it is to bring comfort and happiness to others!

Plumber as Fairy Prince

"And who would be the Fairy Prince to work this transformation?"

"Why the Plumber of course!"

Did you ever realize the responsibilities that one little word "Plumber" carries with it?

He it is who has it within his powers to raise us out of the sloth and filth of the middle ages and deposit us within the gates of "Spotless Town."

See how many homes you can make happy in the next twelve months!

Get right to work and figure out the possibilities in your own immediate locality!

More power to your pencil!

THE SALIENT FEATURES OF THE GAS WATER HEATER BUSINESS

(Continued from page 14)

this very protection can be greatly impaired and possibly even destroyed with improper installation. This is particularly true in automatic water heating. Therefore, it is necessary that the greatest care be taken in designing the installation, selecting the proper heater, tank, etc., and in the mechanical details of the actual setting of the appliances. In fact, I might say that to some extent, the future of water heating depends upon the reputation we make from the standpoint of both cost and automatic operation without excessive maintenance.

Important Points

In many cases it has been shown that the cost of heating water for any particular installation can easily be doubled or tripled due to not understanding the fine points involved. The heater must be located in the proper position; it must be well insulated; circulation, if not necessary, must be avoided; excessive temperatures must be avoided, etc. Both the equipment and method of installing must be perfectly understood if a satisfactory result is to be obtained from the standpoint of operation.

These points were very clearly brought out in an article "Heating Water by Gas" by Mr. N. T. Sellman in the May issue of the A.G.A. Monthly and which was subsequently reprinted in pamphlet form. I mention this because this pamphlet is available and contains the information which is essential in order to make proper, intelligent installations which, as I have said, are of primary importance if this unsold field is to be successfully covered. Furthermore, the Association headquarters is always ready to give its assistance, through its Service Engineers, in problems of this sort.

But much can and should be done by the companies themselves along these lines. By that I mean that the sales forces that are to handle water heating, first should be thoroughly instructed in correct methods of installation. A thorough training of the salesmen should be carried on so that they can handle their prospects intelligently. This, I feel, is of the greatest importance. Water heating cannot be handled in a hit-or-miss manner. It is not sufficient to get only the appliances sold, connected and operating. They must be the right appliances for the location or else "gas hot water" will never take its place beside "cook with gas." I might even go so far as to say that every salesman should not only be supplied with the pamphlet "heating water by gas" but should be made to study it and then examined to assure his fitness for intelligently handling his prospects.

Assuming that this education has been accomplished, the sales manager has still something else to think about. No matter how carefully the details of the plan of campaign have been laid out, whether in the home office or through adoption of the suggestions from A.G.A. headquarters or elsewhere, it is necessary that the sales manager keep the subject of water heating continually before himself and before his men.

Using Prospect List

In order that this may be done systematically, I suggest that the sales manager require his organization to furnish him with weekly reports on the sale of gas heaters, these reports to give in detail the style of each heater sold and some description of the number of people and fixtures through which they are supplied, etc., so that a check can be made of the adequacy of the installation. A falling off in sales will then always be automatically called to the manager's attention so that he in turn can "jack up" his force to renewed activity.

Of extreme utility also would be a prospect list. This list should be carefully prepared, sparing no time or trouble in making it accurate and comprehensive. In doing this it may be advantageous to include information in considerable detail, such as the metered figures of hot water used on such prospects that appear to warrant it, the cost under present methods of supply, etc. This list should be prepared in advance and always kept up to date.

I also believe that some arrangement should be made by which the sales force may benefit financially in direct proportion to their efforts. Whether this should be based on a straight commission, a bonus on gas consumption or some other means can best be determined on the ground.

Naturally one other phase of the gas companies' own activity in pursuing this work suggests itself at this point—advertising. First, the displays in the companies' offices and showrooms. I strongly recommend that every gas building be equipped with a gas fired water heating installation of the most modern and correct design. Do not let us be like the shoemaker's children. Let every gas building stand out as a place where a truly model installation of correct water heating by gas can be seen. And in our display rooms make a comprehensive showing of automatic water heating appliances. It is not necessary to carry every make, but it is necessary to show a sufficient number of sizes and types so that our customers can see the range of appliances at their disposal. And do not put the display in an out of the way corner—keep it out where it can be seen and examined by all who enter the display room.

Use Display Windows

Moreover, do not neglect the display windows. Make displays from time to time of water heating equipment and make them active displays. Three or four windows full of appliances, dead, no matter how attractively labeled, will not produce the results of a single window that has action. And make this action demonstrate clearly that it is automatic hot water that is being shown. Do not run the chance of leaving it to the people's imagination. Your display windows, used periodically in this way, will prove a great assistance.

With this should go advertising in the offices, display rooms, on the trucks and wagons, on the gas bills and in the newspapers. As regarding this latter, newspaper advertising, I do not believe that there is any better advertisement than telling the public just what you are doing. For example, every time you make a big installa-

(Continued on page 18)

HARD TO BELIEVE

Sammy: "Over in America we gotta lilac bush fifty feet high."

Tommy: "I wish I could lilac that."

PAPA'S MISTAKE

Wife—Dickey, dear, your plumbing shop is in State Street, isn't it?

Dickey—Yes, why?

Wife—That's what I told Papa. He made such a funny mistake about you yesterday. He said he'd been looking you up in Brad Street.

THAT'S DIFFERENT

"Hello! Hello! is this you, Mac?"

"Aye."

"Is this Mac Macpherson I'm talking to?"

"Aye; spe'kin',"

"Well, Mack, it's like this: I want to borrow fifty dollars—"

"All right. Ah'll tell him as soon as he comes in."

STUNNING RETORT

When Jimmie, the plumber's apprentice, was called upon to stop, he asked, indignantly, "What do you want with me?"

"You were travelling at forty miles an hour," answered the police officer.

"Forty miles an hour? Why, I haven't been out an hour," he replied.

"Go ahead," said the officer. "That's a new one to me."

RULES OF THE ROAD—TOKIO

(Posted in Central Police Station)

1—At the rise of the hand of the policeman stop rapidly.

2—Do not pass him by or otherwise disrespect him.

3—When a passenger of the foot hove in sight tootle the horn; trumpet at him melodiously at first, but if he still obstacles your passage tootle him with vigor and express by word of the mouth the warning "Hi Hi."

4—Beware of the wandering horse that he shall not take fright as you pass him by. Do not explode an exhaust box at him. Go soothingly by.

5—Give space to the festive dog that shall sport in the roadway.

6—Avoid entanglement of dog with your wheel spokes.

7—Go soothingly on the grease mud as there lurks the speed demons.

8—Press the brake of the foot as you roll round the corner to save collapse and tie up.

Details of New Water Lifting Machine

Distinct Advance on Ordinary Hydraulic Ram for Raising Water Supply is Made in the Hydrautomat—Converts Contained Energy of a Large Quantity of Water at a Low Head Into Smaller Quantity at High Head

Written for Sanitary Engineer by MAJOR JOHNSTONE-TAYLOR

IT IS well known that under certain circumstances the flow of a volume of water such as would pass along an ordinary stream, can be made to raise a proportion of its own volume to a higher level, the quantity so raised and the height to which it is raised depending upon the ordinary laws of hydromechanics.

Such a machine is termed a "Hydraulic Ram" and it has the advantage of being cheap in first cost, simple to operate and easy to maintain in good order and above all costing nothing to run. An English engineer, Mr. T. F. Allen, has just invented a machine on somewhat similar lines, but which is a distinct advance on the ordinary "Ram."

In common with the ram it has no moving parts except the sluice gate and it is self-contained and depends on the employment of two natural sources of energy—the weight of a column of water and atmospheric pressure. The machine is termed a "Hydrautomat" and the experimental plant erected near London is shown in the photo, while the operation of the apparatus can best be followed from the diagram.

Stream Raises Part of Itself

The action of the machine consists in converting the contained energy of a large quantity of water at a low head into that of a smaller quantity of water at a high head. Thus the stream is utilized to raise up part of itself to a higher level for the purpose of a gravitational supply, while it may also be arranged to derive its power from a comparatively dirty stream in order to lift clear water from an adjacent source. As regards the action of this interesting piece of apparatus, presume that in a river there is an available fall between an upper level which may be termed the head race and a lower level or tail race.

Half way between them is the operating chamber A. It is supplied by an intake pipe from the head race, while there is a discharge pipe from it leading to the tail race. Above it, and to the required height is constructed a series of tanks as shown, closed and open alternately. These could be either placed one above the other as shown in the photo or arranged like steps up a hillside as shown in the diagram.

Pressure Followed by Suction

These tanks are interconnected by pipes. The closed tanks are, in addition, coupled to the operating chamber A by an air pipe, their combined capacity being equal to that of the operating chamber. Operation is confined to two strokes, pressure followed by suction. The pressure is created by the weight of the water column flowing into the operating chamber A from the head race through pipe G. Its effect is to compress the air in A and to force it out through F into the closed tanks C C. The water in these tanks, which has been lifted by the preceding stroke is thereby forced out into the open tanks D D.

Thus at the end of this pressure stroke, chambers A and D are full of water but C C are full of air. In the suction stroke the contents of the oper-

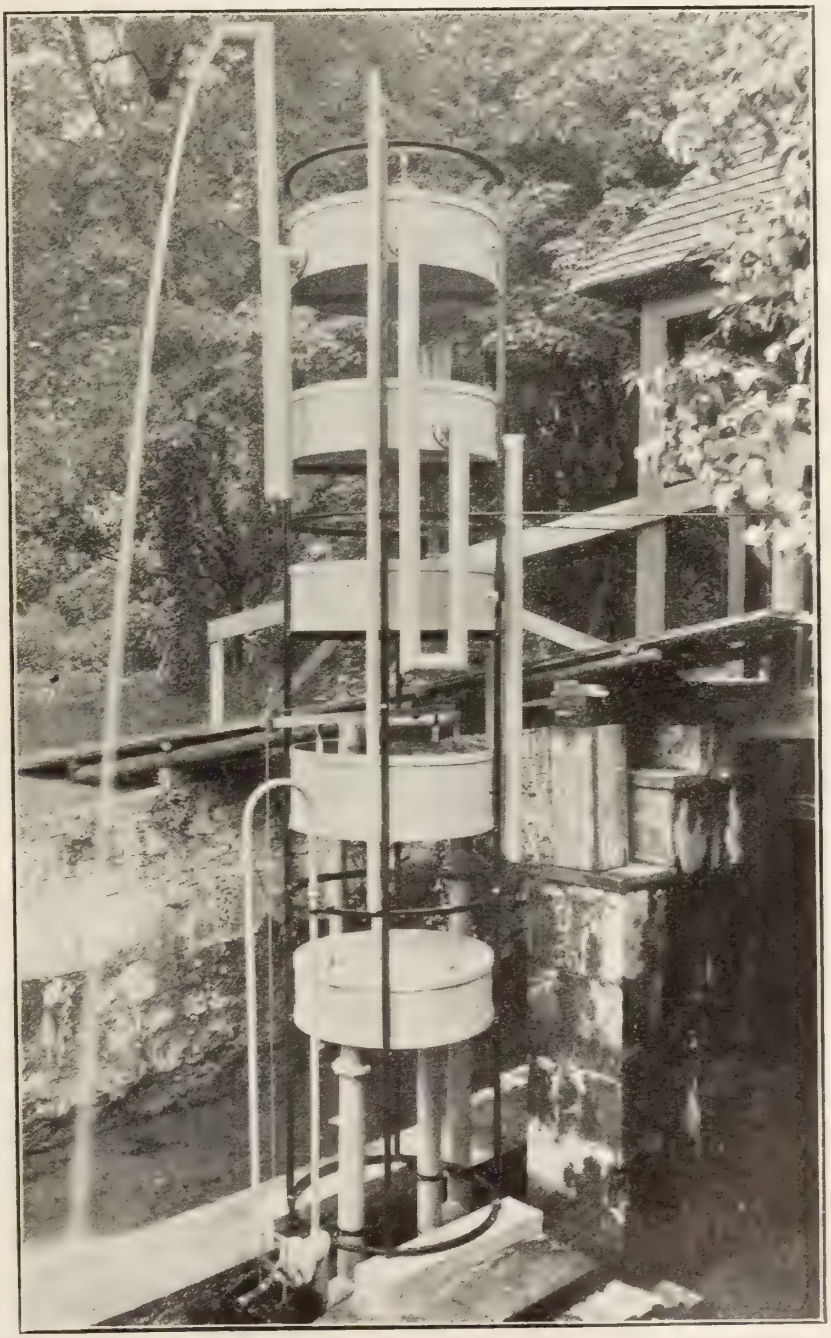


Photo of the water-lifting machine described herewith, in action.

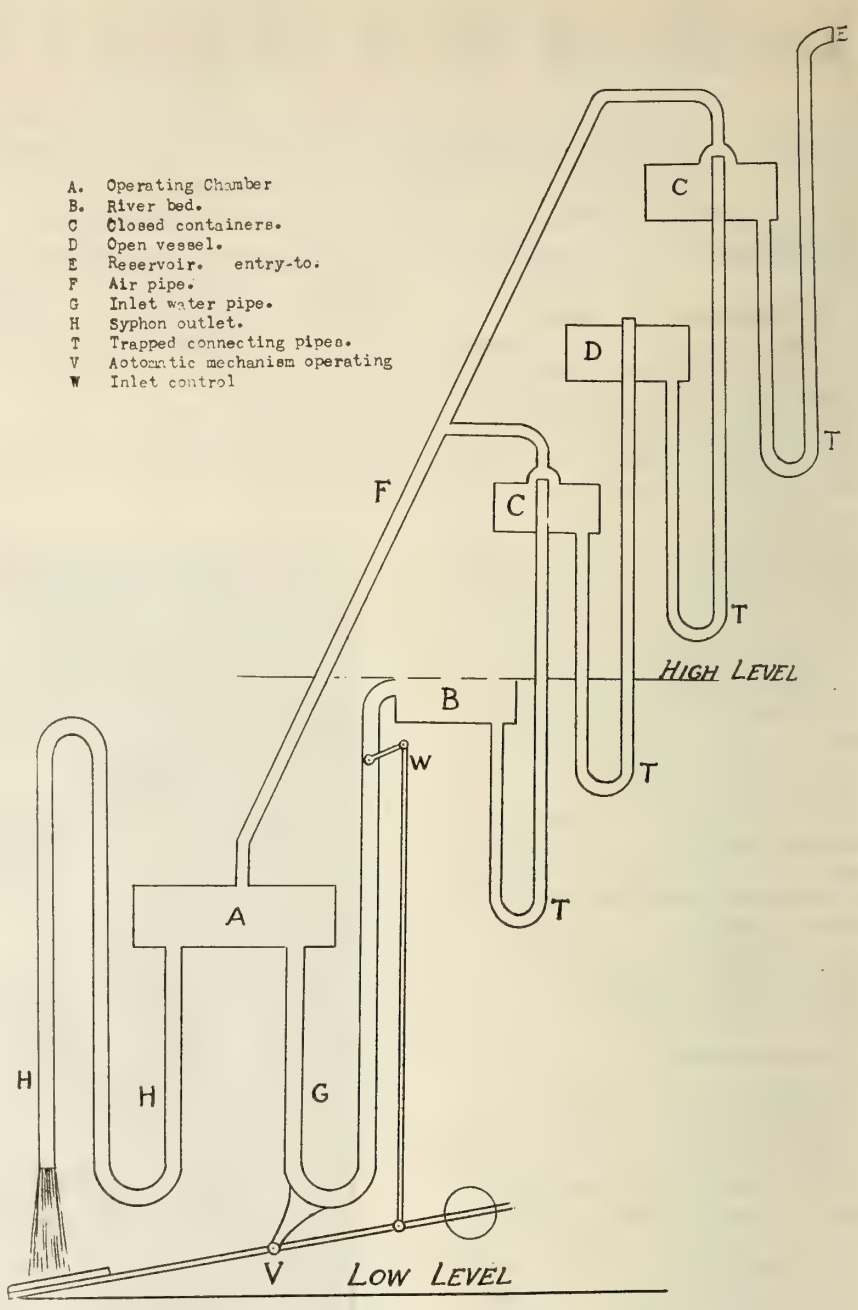
ating chamber are discharged downwards into the tail race and at the same time the inlet to the head race is automatically closed. This is effected by the mechanism V and the valve W by the rush of water through the syphon pipe H.

A vacuum is thus produced in chamber A and by virtue of the air conducting pipe extends also to the closed tanks C C. The result is that the water in each open tank is sucked up one flight into the next higher closed tank.

Pipes are Water Sealed

At the end of this suction stroke the open tanks are empty of water and the closed tanks are full. The inlet from the head race then opens automatically, pressure water is admitted into the operating chamber, a new pressure stroke starts and the cycle is then repeated as before. It will be noted that there are no non-return valves or mechanical checks, the pipes between the tanks all being water sealed. It will thus be observed that the air-conducting pipe transmits the actual power from the operating tank where it is generated. This power, in the form of compressed air forces water up one flight from the closed to the open tanks and then the vacuum on the suction stroke draws water up one further flight from the open to the closed tanks. The requisite height is obtained by carrying the series of closed and open tanks together with the air pipe to the desired point. The system is claimed to be equally effective at high and low lifts and at no point does the pressure exceed a few pounds per square inch, no matter what the height of delivery. For instance, with a working head of six feet the maximum pressure is less than two pounds per sq. in., while the normal efficiency of the apparatus is stated to be as high as 80 per cent. The machine shown in the photo is working on a fall of 7½ feet, the delivery pipe seen at the extreme top of the apparatus is 20 feet above the tail race.

About 14 gallons of water are lifted to the full height in each complete cycle, the time thereof, being a little under three minutes.



The construction of the water-lifting device described in this article is clearly shown in this drawing.

THE SALIENT FEATURES OF THE GAS WATER HEATER BUSINESS

(Continued from page 16)

tion write it up and let them know that in such and such a case you are supplying all the hot water for a hotel with 150 baths, the quantity of hot water that is used, the appliance that heats it, how it is controlled, its temperature, how much it costs a gallon, etc. Advertisements of this kind will not only excite the interest of everybody connected with a building of similar size and character, but cannot help but keep "gas hot water" ever before the reading public.

Secure Plumbers' Co-operation

So much for the work within the gas company. In addition to this, I believe that there are several outside agencies whose assistance can very profitably be enlisted. For instance, there are the plumbers. Their co-operation should most certainly be sought. I believe that this will resolve itself into the question of making satisfactory arrangements with the plumbers and plumbing trade in matters such as payments, commissions, etc. For I think you will find that the surest way of securing their co-operation is an arrangement wherein they may secure their share of profit. Every effort should be made to make the gas company, the salesman and the plumber the installation medium with the before-mentioned commission or profit-sharing arrangements. You will find the plumbing trade openly receptive and I am sure that this is not only the surest way of obtaining their co-operation but also the surest way of securing the sale of good equipment properly installed. In addition they can well receive copies of the pamphlet "Heating Water by Gas."

Insofar as the co-operation of the architect is concerned, this is largely a matter of educational work—but educational work distinctly worth while. See that he receives a copy of "Heating Water by Gas" and see to it that the fact that gas appliances of all descriptions are available for water heating in the home, office building, and even fair-sized hotels and institutions, is always before him. Do not let him lose sight of this. And in the case of large installations, the gas company should co-operate with him to the extent of helping him estimate the installations, and, if requested to do so, even make a pipe layout of the proper method of installing the equipment.

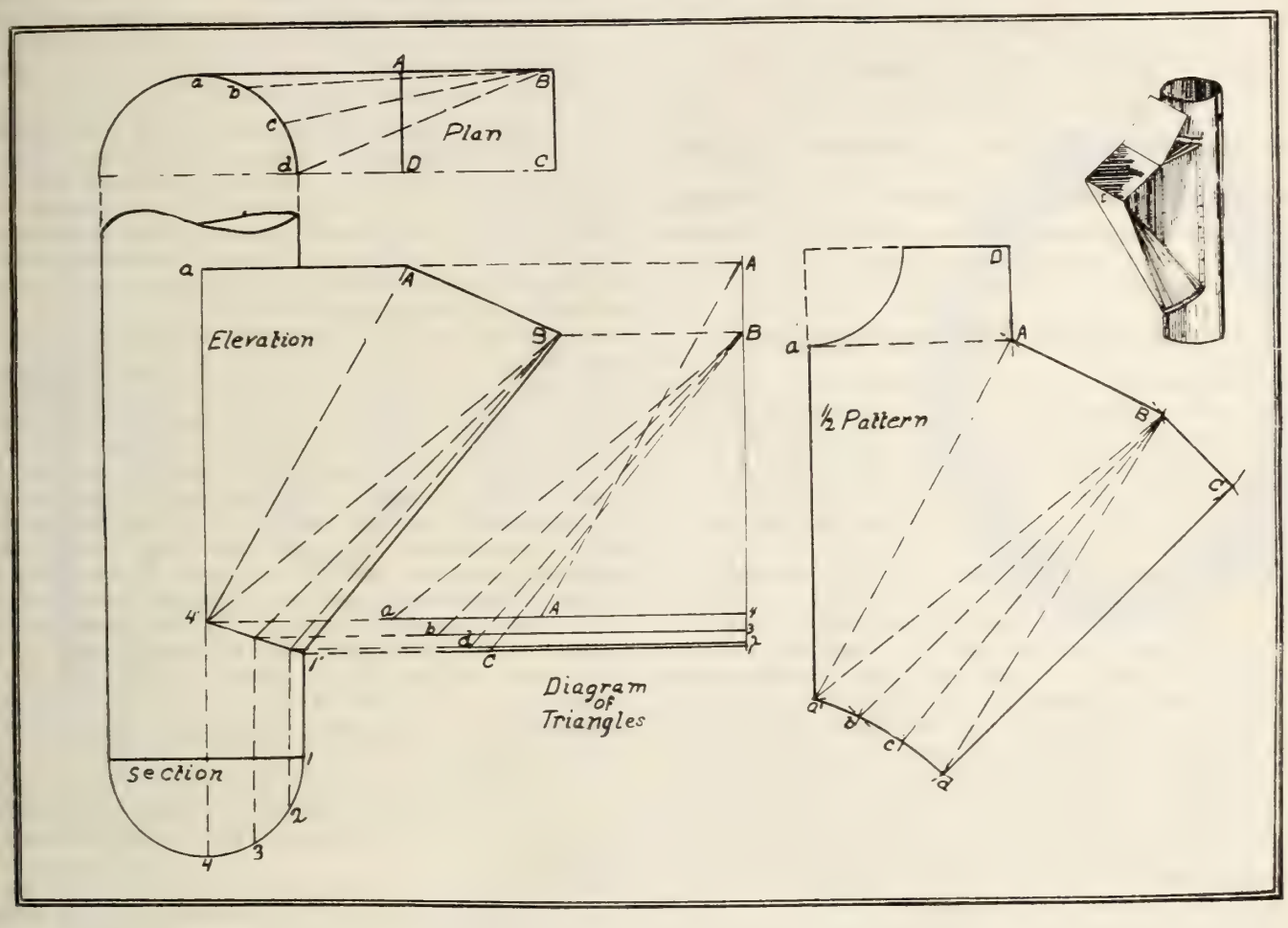
Entirely Practical

I have endeavored in this to point out the desirability of securing this business, what it may mean if accomplished, the features existing at present which make this a most opportune time for inaugurating such an effort and some of the broader details which I believe should be followed for successful continued sales and satisfactory

(Continued on page 23)

Tinsmiths' Patterns for Chutes

Written for Sanitary Engineer by O. W. Kothe, Principal St. Louis Technical Institute, St. Louis, Miss.



NOW AND then chutes are placed in pipes for throwing down refuse and other material in place of other means.

In such cases the design similar to one shown here can be used.

The first step is to detail the side elevation, making the pipe to the required diameter and then detail the hopper as a-A-B-I'.

The angle made by B-I'-I is bisected, thereby establishing point 4'.

Next we describe the half section and divide in equal parts and then draw lines to this miter line.

After which, we draw lines to the corner B.

Next draw a plan by erecting lines from A and B of elevation so as to produce the foreshortened view of hopper and then describe the half circle and divide in the same number of equal parts as the section.

Draw lines to the corner B and you have the working drawing finished.

To set out the true lengths, draw any line as I-A in diagram. Then from points A and B, also each point in miter line 4'-I' bring over horizontal lines to this vertical line in diagram.

With dividers pick the triangular lines from plan as B-a; B-b; B-c; and B-d and set in diagram as 4-a; 3-b; 2-c and 1-b.

Also pick plan lines Aa and set in diagram as 4-a and draw lines to the elevation A.

All the other lines draw to B and you have the true length as shown.

To set out the pattern draw any line as a-a' in pattern equal to a-4' of elevation.

Then pick the line a-A from elevation and from a in pattern describe the arc A.

After this pick true length A-A from diagram and using a' as center cross arcs in A of pattern.

Then pick the width of hopper A-B of elevation and using A in pattern as center, strike arc as at B. Then pick true length a-B and using a' in pattern as center, cross arcs in point B.

Now pick a girth space as 1-2' from section, spanning the dividers a fraction larger and describe arc b in pattern.

Pick true length B-b and using B in pattern as center, cross arcs in point b. Continue in this way until point d is established. Then pick half the length in plan as B-C and, using D in pattern as center strike arcs as at C. Now pick the elevation line B' and using d in pattern as center, cross arcs in point C. Join lines through all points where arcs cross and the pattern is finished.

To add the to A-D-a the top of plan is just simply reproduced. To this edges must be allowed for riveting and enclosing a wire. If a lid is placed over the opening of the hopper this can easily be provided for, by one of several different plans.

CONTRACTS AWARDED

Kingston, Ont.—At a meeting of the Board of Education tenders were received for the work in connection with the construction of assembly rooms at Macdonald and Frontenac schools. Contracts were awarded as follows;

Frontenac school—Ventilation, McKelvey and Birch, $104. Macdonald school, ventilation, Simons Bros., $81.

MONTREAL RESERVOIR CONTRACT AWARDED

The general contract for construction of the new Montreal reservoir, costing $575,000, has been awarded to E. G. M. Cape & Co., 10 Cathcart St. Gate valves and fittings will be supplied by Crane Limited.

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Future of Gas Business Assured

AN ARGUMENT sometimes encountered by Sanitary Engineer representatives in discussing business possibilities with operators is that they do not actively engage in the sale of gas water heaters or encourage gas piping of houses for such fixtures because of their belief that electricity is gradually eliminating gas and the future does not justify any present means to expand this trade.

It is only those who have not studied the situation who take such a stand and fortunately they are very much in the minority. This is far from being true. While electricity has supplanted gas to a large extent in lighting, yet the broader field of heating is still served very largely by gas and from present indications the use of gas is more likely to increase than otherwise. None realize more than the producers of electricity themselves that gas is and will continue to be an important factor in heating. As a matter of fact the Ontario Hydro Electric Power Commission supports the use of gas very strongly for heating purposes. It has within the past few years taken over gas plants in poor state of repair at Oshawa, Port Hope, Ont. and other points and developed these into first class industries.

The supply of electricity is not yet sufficient to supplant the use of gas for heating purposes, and even if it were it would be folly to use electricity for heating purposes unless there was a tremendous volume of power available because there is a much greater wastage of energy in developing heat by electricity than by gas, coal or coke.

From a technical standpoint this works out as follows: Six cubic feet of gas is secured from a pound of coal and there are 500 B.t.u's (British Thermal Units) of heat per foot of gas. This pound of coal will also produce half a pound of coke. Coal is not worth a cent a pound so there are over 3,000 B.t.u's from a cent's worth of coal at $20 per ton. In the half pound of coke there would be 7,000 B.t.u's giving a total of B.t.u's of heat in the pound of coal valued at one cent. In one cent's worth of electricity at rates prevailing in Ontario there are 3,412 B.t.u's of heat.

It is apparent from the foregoing that while there is no great surplus of electricity, and the possibilities for use of power for lighting and power are by no means exhausted, the use of gas for heating purposes is not as likely to be discontinued as it is to be increased. Operators in this industry might therefore well give their attention to the gas heater end of the business and co-operate for bigger business in the future by encouraging builders to provide gas facilities throughout houses while they are under construction and thus avoid much subsequent delay and expense when gas appliances are being installed.

High Prices Don't Spell Success

DISCUSSIONS at operators' conventions and informally among plumbers have frequently brought out the prime importance of the question of price in to-day's business. The price to the consumer represents the percentage of mark up which in turn indicates the expenses and margin of profit of that particular shop. The price will govern very largely the volume of turnover by which the mark up is set. Hence it is of dual importance to plumbers.

The price has figured more intensively since 1917 than any factor in the making and unmaking of business. Why is this? The answer is that the price if proper and stable encourages demand and accelerates sales. If prices are too low, profits are cut off and industry wanes. The abnormally low price will not of itself develop business. When the price is too high, danger of quick deflation is threatened with a serious loss to the business enterpriser.

The chief object of business should be always for a proper and stable price. We cannot always take the index number as a safe guide, because it may happen that some prices are too low and others too high. The average may be all right. Thus in the depression the prices of basic commodities went too low, the prices of fabricated commodities did not fall enough to prevent maladjustment between the two, and this has been one of the chief occasions of a slow moving business. It was natural to expect higher prices for the basic commodities—not only natural but proper. In producing the fabricated commodities, however, costs should have controlled, so that any reasonable increase in the basic price could be absorbed without causing any decided upward swing in the price curve. We have not accomplished this, and it is one of the dangers in our present situation. We see the basic price rising and we hear comments on cotton going to an abnormal figure. Perhaps there is no reason for anticipating a high movement, though it is only to be expected that the prices which went too low should regain themselves in a measure. They ought not, however, to go to a point where business will be restrained.

Let there be a stiff control of the fabricated price, for if its upward swing is too great the liquidating value of commodities will again be in peril and we can well look for another depression. We are endeavoring to point out the mistake of believing that business success is bound up to high prices. It is bound up to stable prices. Prices that are reasonable will encourage buying, for they give a safe liquidating basis to commodities.

Out For an Advantage

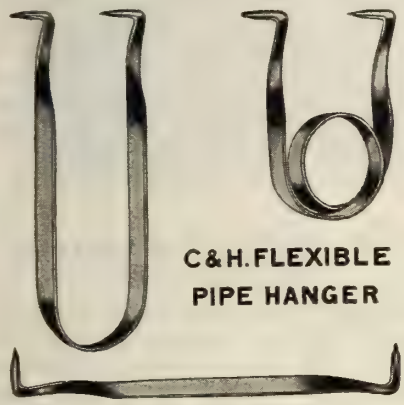
A REVIEW of taxation methods made applicable by the government in the past few years indicates that the tendency is definitely toward the extension of principles of direct taxation, involving the use of the Sales Tax, Stamp Tax, etc., as the chief source of revenue compared with Customs Duties.

With this in view sanitary engineers are well advised to make a study of the application of such forms of direct taxation as are now applying and be prepared to assist in the securing of regulations designed to protect their interests as a class. Questions of policy in regard to the Sales Tax must be considered so that operators in future will not be burdened with absorbing a tax which may be much bigger than it is to-day. The same applies to the endeavors being made to collect the Stamp Tax in certain cases from plumbers. With so many regulations being issued it requires constant attention to see that other branches of trade do not raise their voice higher than we do and get any unfair advantage.

New Goods of Interest to the Plumbing Trade

FLEXIBLE PIPE HANGER

Messrs. W. H. Cunningham & Hill, Ltd., Richmond St., W., Toronto, are now putting on the market a flexible pipe hanger. This galvanized band can be easily bent to fit any sized pipe, while the distributors point out that the drive points are hardened so as to be easily driven into the joists. An important feature is the fact that the hanger can be shortened by winding around the pipe, if necessary. Another advantage



claimed for the flexible hanger is the fact that one size can be used to take the place of many different sizes previously required.

HERCULES PIPE SOLVENT

This drain pipe solvent is made by the Hercules Chemical Co., 440 Wellington St., New York City. The manufacturers state that it is sold exclusively to plumbers and is distributed through the usual supply houses. Its purpose is to clear stoppages in drains, bath tubs, kitchen sinks, laundry tubs, urinals, water closets, stables, floor drains and grease traps. It is also pointed out that the Hercules solvent, when added to water, makes a heavy, strong solution that works its way down to the stoppage and dissolves it. It is also claimed that it will destroy accumulations of lint, cloth, slime, grease, sponge, vegetable matter, chewing tobacco, cigar and cigarette butts. In placing this product on the market the manufacturers point out that the use of same frequently offsets the trouble and expense of taking plumbing apart to reach a stoppage: saves tearing up floors or cutting into walls. It is also said that it is effective for thawing frozen drain pipes, stacks, flush tanks or traps.

ATLAS POSITIVE CIRCULATOR

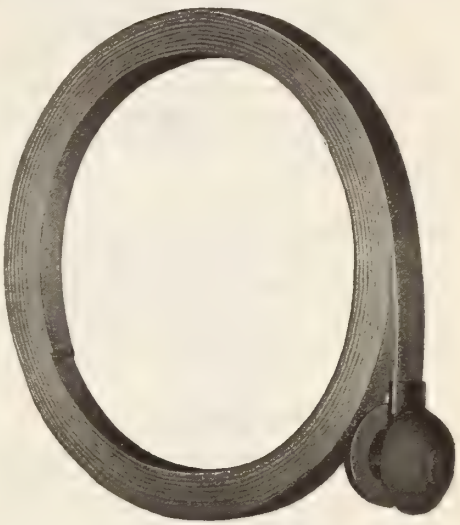
The Atlas Engineering and Machine Co., Ltd., Toronto, has completed the purchase of the royal letters patent including the sole manufacturing and selling rights of the Atlas positive circulators for hot water heating.

The Atlas circulator is the invention of H. H. Angus, B. Sc., consulting engineer, Toronto, and introduces some new and useful improvements in accelerating pumps for hot water heating systems. By overcoming the friction of flow and creating a more rapid circulation the efficiency of the hot water boiler is very largely increased. The conical shaped impellor is so designed to permit a through gravity flow if the motor should stop, or as in the spring and fall during mild weather when the pump will only be required to run one or two hours daily. There is also an arrangement of deflector blades to stop the swirling action as the water leaves the impellor thus directing the water in a straight axial flow.

NEW SEWER ROD

A new sewer rod with rotary head, has been placed on the market by Wolverine, Limited, Toronto. This is a labor saving tool for cleansing clogged sewers. It is described by the makers as simple, practical and dependable, for strength, durability and service.

The 1½ inch rotary head rolls freely over all joints. This head is firmly secured and cannot work loose. The rod is made of ¾ inch specially tempered steel, finely balanced in rigidity and has rounded edges to protect the hands. It is made up in fifty-foot lengths, and weighs about 17 pounds. Additional lengths can be supplied. Wolverine, Ltd., are also turning out a waste pipe cleaner coil, ¼ inch, in 15 and 25 ft. lengths, with rotary head 13/16 inch diameter.

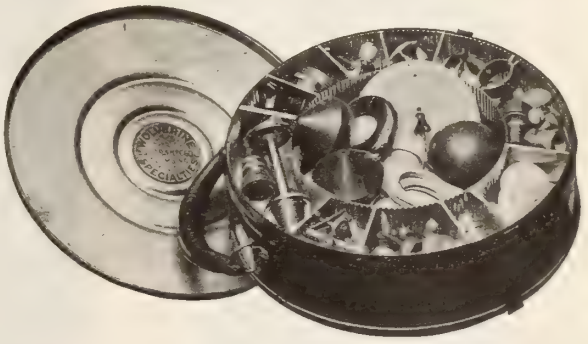


OTTAWA PUBLIC SCHOOLS MAY ADOPT OIL HEATING

Ottawa.—There is a likelihood that oil-burning will be immediately substituted in most, if not all, the Ottawa Public schools for heating purposes, in readiness for the forthcoming winter. The matter will be decided at the next regular meeting of the School Board. The matter has been brought to a head through the desire of the local coal dealer who has secured the year's contract for the supply of coal for heating the Public schools and buildings, to be released from the contract in view of strikes and other difficulties.

Wolverine Steel Specialty Case

A steel specialty case is now being manufactured by Wolverine Limited, in their Toronto factory. This case is compact in construction, being only twelve inches in diameter and four-and-one-quarter inches deep, and has twenty-four small and one large, separate compartments, for carrying a complete assortment of washers, plugs, screws, tank balls—in fact all the small items required by the plumber or fitter on contract and repair work.



The partitions are made of aluminum and are so placed that the size of the different compartments can be altered to suit the requirements of the user and also prevent any of the pieces getting from one compartment to the other.

This case is finished in black japan, with leather handle, and when used, the makers claim it is possible to keep the stock clean, and in good shape and will prevent loss of materials.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

TAKES OVER NEW SHOP

Daniel J. Donavon, plumber, of Newcastle, N. B., has taken over the store recently vacated by George M. Lake and will merchandise plumbing and electrical supplies.

CHAMBERLAIN DESOLVO HAVE NEW LOCATION

The Chamberlain Desolvo Co., Ltd., Toronto, have moved into new quarters at 35 Richmond Street, E. Their former address was 109 Church St.

PERSONAL

Chas. Gelz, of the Montreal office of Mott Company, will take temporary charge of the Winnipeg office, filling the vacancy caused by the death of A. C. Brown, former manager.

STARTS NEW PLUMBING BUSINESS

A. Walter Allen, Associate of the Royal Sanitary Institute and for several years an instructor in Sanitary and Heating Engineering in Ottawa Technical Schools is commencing business on his own account in Ottawa. His past experience includes ten years practical work in England, five years as journeyman with J. P. Band and Co. Ottawa, two years Sales Engineer Dominion Radiator Co., Ottawa, one year Sales Engineer C. A. Dunham Co., two years manager of plumbing and heating department of John Lewis Co., Ltd., Belleville, Ont.

STRIKE AT ANTHES PLANT NOW SETTLED

Moulders and other workers engaged in the foundry of the Anthes Foundry Ltd., Toronto, recently went on strike over a matter of wage scales. The trouble is now satisfactorily settled after a period of two weeks. The workers contended that plumbers and fitters engaged in laying soil pipe and fittings received a higher rate in proportion than did the men who labored at the manufacture of these products. While the forced restriction in output lasted, demands upon the Toronto stock were supplied by rush shipments from the Winnipeg factory.

GALT WATER SUPPLY ENSURED

Galt, Ont.—Work will be commenced immediately at the laying of a 20-inch water main across the river to ensure to the west side of the city a steady supply of water. The contract for this work has been awarded to C. E. Stewart & Sons of Port Dover, at a price of $8,000 for the river crossing only.

CONTRACTS AWARDED

Montreal.—Plumbing and heating contracts for stores and flats costing $15,000 for Adelman & Kelatz, 5201 Sherbrooke, W., are awarded to J. Becker, 1439 St. Dominique.

Montreal, Que.—Jno. A. Gordon, 301 St. Antoine St., has plumbing contract for warehouse and grain elevator costing $60,000 for Bruneau Currie & Co. Ltd, 14 Youville Place.

Victoria, B. C.—Plumbing and heating contracts for arcade costing $93,000 for David Spencer Ltd., are awarded to Colbert Plumbing & Heating Co. Ltd., 755 Broughton St.

NEW KITCHENER WATER PLANT ALMOST FINISHED

Kitchener, Ont.—With the new plant of the water commission completed and ready for service in the course of six weeks' time, Kitchener's water worries will be over for a generation to come, at least, according to Superintendent Pequegnat.

The new plant will have a capacity of 1,500,000 gallons a day. This, added to the present supply, would make a total daily supply of 2,500,000 gallons.

The superintendent stated also that the reservoir of the new plant will create an additional 1,000,000 gallons storage. This with other storage facilities will give the city a storage capacity of 2,500,000. The average daily demand now is slightly over a million gallons, and this amount will be reduced in the winter.

J. F. McKINLEY

Secretary-Treasurer of the Ottawa firm of McKinley & Northwood, plumbers, who has been appointed judge of the Juvenile Court in Ottawa.

WANT TENDERS FOR SANITARY CONVENIENCES

Tenders addressed to Mayor Maguire, Toronto. will be received by registered post only up to noon on Tuesday, September 5th, 1922, for the installation of sanitary conveniences in a number of dwelling houses.

Specifications may be seen, forms of tender and all information relating thereto obtained at the office of the Medical Officer of Health, City Hall. The usual conditions pertaining to tendering as prescribed by the City By-law must be strictly complied with, and envelope containing tender must be plainly marked "Tenders for Sanitary Conveniences." The lowest or any tender not necessarily accepted.

OBJECT TO POLLUTION OF WATER BY PUMPING WATER BALLAST

Sault Ste. Marie, Ont.—The suggestion made at the council meeting that the Board of Health should endeavor to take some steps to put an end to the practice of vessels pumping water ballast into the river just above the ship canal here, allowing it to come right down into the power canal, from which the city water is drawn, is a very important one.

A few weeks ago it was suggested editorially that the Provincial Board of Health might be able to do something to put a stop to the practice, which has been under discussion from time to time for several years. The local board might very well lay the matter before the provincial board, which might be able to take action which would be effective. The further away it is pumped out the better.

The Kind of Fish They Catch in Lake Scugog

Here's a jolly little fishing party composed of Captain "Jock" Witherspoon and Major Laurie Anthes, both of Anthes Foundry, Ltd., "Ken" Allison, alias K. B., alias Allpriser, and N. W. Kingsland of Sanitary Engineer. The man-eating muskelonge shown in front of K. B. weighs 13 pounds, while the smaller on the left backed up by the gallant Major, tipped the scale at 6 pounds.

BIG NEW RESERVOIR

Kitchener.—The new million-dollar reservoir erected on the Strange street property of the Kitchener Water Commission has been completed this week, and is being filled, and will be put into use immediately. The reservoir is a part of extensive additions to the city's waterworks system, which are being made this year.

NOVEL STUNT BY RETAILERS

"Dollar, dollar! Who's got the dollar?" will be one of the stunts introduced into the business campaign planned for Exhibition fortnight by the St. Clair Business Men's Association, Toronto.

A brand-new one dollar bill will be withdrawn from a neighborhood bank by one of the association and it will be attached to a card upon which the first owner will sign his name. He will then proceed to put it into circulation by purchasing a dollar's worth of something from one of his brother business men, who in turn will sign the card and go forth to buy something else. Thus the dollar will be made to circulate within the district for the whole two weeks, during which time a complete record will be kept of the various commodities it has purchased, while the names attached to it will furnish a personal history of its travels.

During the campaign the places of business occupied by the members of the association will display cards in their windows certifying to their membership. Thus customers will be able to distinguish between the campaigners and the others.

WINDSOR WILL VOTE ON WATER SCHEME

Windsor.—Plans of the Windsor Water Board for a filtration plant that will have sufficient capacity to supply all border municipalities are almost completed, and will be ready to submit to the people with the plan of the Essex Utilities Commission at the annual municipal elections in December. This announcement was made by Mayor Wilson. Whether Windsor can sell filtered water at a lower price than the figures submitted by Engineer J. C. Keith, in his report on the project of the Utilities, is still in doubt, the Mayor said. He is confident, however, that the plan of the Water Board will be acceptable to the majority of water users in the event of a decision being made to build a filtration plant.

FEATURES OF GAS WATER HEATER

(Continued from page 18)

installation. But just one more word. The securing of this water heating business is not by any means a fantastic chimera. What we are recommending is not only entirely practical and feasible but it will give our customers, in most cases, better service for equal or less cost than other fuels. And even in those cases where gas water heating might show an increased fuel cost, the added advantages of automatic water heating with its convenience, reliability and uniformity of service make it an endeavor which will give the public more than full value. And let me say in closing that I believe that there is no other field at present so fertile as that of water heating. I believe that "gas hot water" can be placed side by side with "cook with gas." But I know, and I urge you to take to heart, that this can only be done by the most strenuous, persistent and continuous effort, backed up with the determination to give only the most perfect service possible.

MAJOR L. L. ANTHES AUTHOR OF ARTICLE ON "FIRELESS COOKER AND MAIL ORDER CATALOG"

The name of the author of the article entitled "The Fireless Cooker and the Mail Order Catalog" was inadvertently omitted from the article in the last issue of Sanitary Engineer. For the information of readers we hasten to advise that it is one of the series being written for this paper by Major L. L. Anthes, managing-director Anthes Foundry Co., Toronto.

CONTRACTS AWARDED

Ernest Reynolds has been given the contract for remodelling the Carleton Place High School building. Messrs Taylor Bros. have the heating and plumbing contracts.

The Kingston separate school board has awarded contracts for the remodelling of St. Mary's school to provide increased accommodation. Elliott Bros. have been awarded the contract for heating, plumbing and tinsmithing.

W. G. Edge & Co. have contract for plumbing, heating and ventilating of new Collegiate at Ottawa. Contract was for $27,995.00.

DEATH OF A. C. BROWN, WINNIPEG MANAGER MOTT CO.

The death has occurred in Winnipeg of A. C. Brown, Western manager of the Mott Co., Ltd., Mr. Brown had been apparently in good health and able to continue his office duties up until about ten days prior to his death from typhoid fever.

His connection with the above firm covered a period of ten years, and previous to moving to Winnipeg seven years ago he was employed in the Montreal office. He was in his 29th year, and is survived by his wife and two children, of Winnipeg, also father and mother, two sisters and one brother, of Montreal. Interment took place in Winnipeg.

LATE A. C. BROWN

Big Expectations for Copper Products

General Manager Quigley of Anaconda American Brass Co., Ltd., Newly Located Firm at New Toronto, Ont., Outlines Company's Plans for Canada—May Encourage Brass Cutters and Workers to Canada—Research Propaganda Doing Much Good Work

ANACONDA American Brass Limited has been incorporated in Canada, with capital of one million dollars, as a company chartered to manufacture and distribute brass, copper and nickel silver materials of every variety. As briefly announced in a recent issue of Sanitary Engineer this company has acquired the business and good will of Brown's Copper and Brass Rolling Mills Ltd., of New Toronto. This plant is at present closed while inventory and repairs are being executed but it is expected to be in operation by September 1. This company is the Canadian end of the American Brass Company which has extensive mining and production interests in the United States with head office in Waterbury, Conn.

The officials of the Canadian company are as follows:—

President, John A. Coe; Vice-President, G. H. Allen, Vice-President American Brass Co.; Treasurer, C. F. Hollister, Treasurer American Brass Co.; Secretary, M. S. Moss; General Manager A. H. Quigley. Messrs. Moss and Quigley are the local directors on the board which in addition to the oth' officials named includes; John D. Ryan, Chairman Board of Directors of Anaconda Copper Mining Co.; C. F. Kelly, President Anaconda Copper Mining Co.; B. B. Thayer, Vice-President of Anaconda Copper Mining Co.; and Charles F. Brooker, Chairman Board of Directors American Brass Co.

Can Make Complete Line

Mr. Quigley, general manager of the Canadian plant, was formerly at Kenosha, Wis., the furthest west branch of the company, where he occupied the position of assistant manager. Prior to that he was employed at the mills in Connecticut. Mr. Quigley's whole business experience has been with this firm. Mr. Moss, secretary and superintendent, comes from the Buffalo branch where he was assistant superintendent. Mr. Quigley explained that the Anaconda Copper Mining Co. owns the American Brass Co., which in turn owns the stock of the new Canadian company.

The Canadian charter allows the manufacture of a complete line of products made by the company in the United States, but for the present only those products formerly made by Brown's Copper and Brass Rolling Mills Ltd., will be made. A lease has been taken on the latter's property at New Toronto for five years. Firms who are purchasers of the semi-finished product of the company include electrical, sanitary, domestic utensil, screw manufacturers, the building trades, furniture, stove, scientific instrument, flatware, hollowware, tableware manufacturers, plumbing goods, boat, steam engine, boiler makers, etc. Some articles are finished by the company but the bulk of their production is of semi-finished materials which are trade marked.

The bulk of their trade is direct with manufacturers, though they do sell through wholesalers as well. For now no arrangements are being made for distributing agencies throughout the country as most of the firm's business is done with industries which are largely located in Ontario and Quebec. The products include sheet brass in flats, strips and coils in various mixtures including high brass, low brass and bronze containing from 60 to 95 per cent. of copper. Copper is also produced in sheets, rolls and strips plain and tinned. Polished copper may also be made. The products also include rods including free turning, naval brass and bronze. Larger sizes of wire in various mixtures will be produced as well as sheet copper, hot and cold rolled used among other things for roofing.

Copper Shingles

Asked regarding the likelihood of making copper shingles tinted various shades by acids at the Canadian plant Mr. Quigley pointed out that these would not be made in Canada at present but that these along with other copper and brass products would later be made here providing the company's progress and opportunities for trade are favorable.

Speaking of the reasons for the company locating in Canada Mr. Quigley pointed out that it was done in order that better service might be given Canadian customers, though this branch will not handle any business now done with the head office or branches in the United States in products which will not be made in Canada. Mr. Quigley states that after investigation the firm is optimistic regarding the future of Canadian trade in copper and brass produc particularly. Some price advantage may accrue to purchasers of the company's products through the Canadian plant though the tariff was said to be not highly protective on these lines. Mr. Quigley expressed the opinion that the location here of this company will likely encourage cutters and workers in brass and other such industries to locate here. The propaganda being conducted by the Copper and Brass Research Ass'n. was said to be doing much helpful work in bringing to public attention the value of using copper and brass pipe and other such products.

Convention of Canadian Sanitary Inspectors

To Be Held In Winnipeg September 6, 7 and 8—Many Plants To Be Inspected—First Time In Winnipeg Since 1914

THE STAGE is all set for the tenth annual convention of the Sanitary Inspectors' Association of Canada in Winnipeg on September 6, 7 and 8. In view of the fact that many important matters have arisen during the past year to command the earnest attention of all sanitary inspectors, it is expected the attendance will be a record one.

The convention will open at nine o'clock on the morning of Wednesday, September 6, in the council chamber of the city hall, with the president, G. O. S. Laflamme, chief sanitary inspector of Ottawa, in the chair. Several other well-known eastern delegates will be in attendance.

The addresses of welcome will be delivered by Mayor F. O. Fowler, Alderman W. B. Simpson, and Dr. J. A. Douglas, medical health officer of Winnipeg. Visits will be made to a number of interesting plants and in the evening of the opening day the delegates will be the guests of the chief dairy inspector, E. C. Brown, at his home.

The program will include addresses on important subjects and several round-table discussions.

At noon on the closing day the delegates will be entertained to lunch by the city council in the pavilion in City Park, after which they will be taken on an automobile tour to various places of interest in the city and district.

Local members of the association with the assistance of Alex. Officer, secretary-treasurer of the organization, are arranging a program of visits to places of interest to the members. The heating and ventilating system of the parliament buildings will be included in the program as will also the local creameries, abattoirs, etc.

The convention met last in Winnipeg, in 1914. This year it is being held in Winnipeg following the invitation to do so of the late Mayor Parnell, extended to the association last year at its Ottawa convention.

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights —Keep the Entire Series Where It May Be Referred to And Studied

(Continued from last issue)

These arms will rotate under most circumstances but have been known to stop rotating in high winds. Figs. 83 and 84 show two different details of the central column and show the feed trough and method used in obtaining the necessary head for practical working purposes.

Fixed Spray or Nozzles

The principle on which this stationary distributor works is by forcing sewage through a small orifice, which is accomplished by difference of elevation, between the water level in the dosing chamber and the elevation of the nozzle on the bed; the difference in level to produce a fine spray must be at least 5 feet.

The supply pipe from the dosing chamber for small installations should be 3½ to 4 inches in diameter of C. I. with 3 inch wrought iron risers finished with a 2 inch standard pipe thread on the nozzle dome and the connections to the riser are made as shown in Fig. 85 by threaded joints or by flanged or spigot and socketed joints can also be adopted.

The nozzles are made in three types —Circular Spray, Square Spray and Hexagonal Spray, and Half Sprays for alternate rows next to the filter walls.

VALUABLE FIND OF SOAPSTONE

What promises to be an important and valuable source of soapstone has lately been investigated by H. S. Spence, of the Mines branch, Department of Mines. The deposit occurs one mile west of Wabigoon, on the Canadian Pacific Railway, near Dryden, Ont., and is but 500 yards from the railway. There is very little overburden, and the outcrops indicate a large body of soapstone.

The stone may be termed soapstone, though beyond being soft enough to cut readily with an ordinary saw, it bears little resemblance to what is usually classed as soapstone. It is a dark greenish-grey rock, composed largely of talc, and is very similar in appearance and in composition to the so-called "alberene stone" of Virginia, which is extensively used for switchboard panels, laboratory equipment and laundry tubs, and for lining furnaces and digesters, etc.

The Wabigoon deposit is the most promising, from an economic standpoint, of any of the soapstone occurrences as yet found in Canada; there appears to be large tonnage available; and location is ideal for quarrying, and close proximity to the railway provides satisfactory transportation.

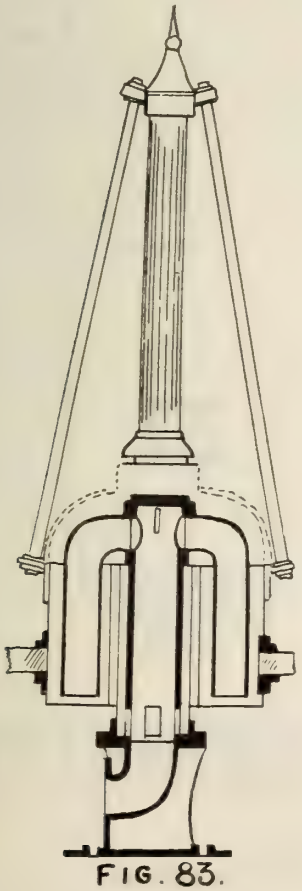


FIG. 83.

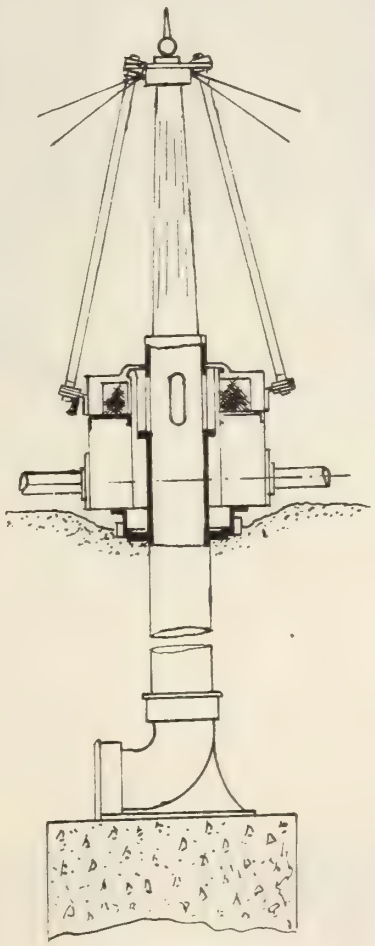


FIG 84.

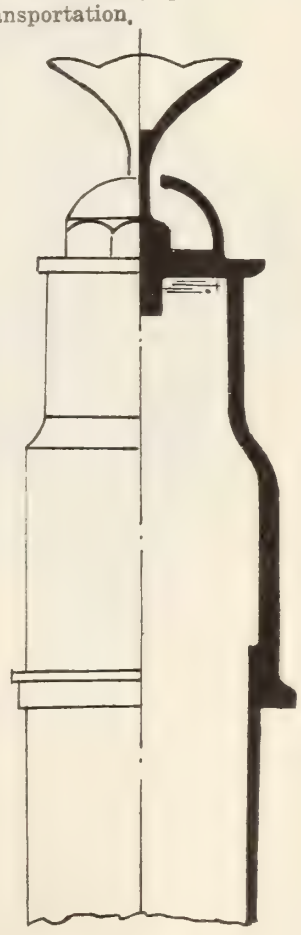


FIG 85.

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following up
personal call

Cut
to

SUPERIORITY PURITY
DURABLE AS THE PYRAMIDS

Port Hope Sanitary

Vancouver Office:
325 HOWE ST.

Factories:
PORT HOPE, ONTARIO

Head
1204 ROYAL BANK

at Moderate Cost"

Pave the Way

ess, as in every other kind successful institutions are the power of advertising, to their own particular

ness, the method that has lvantage and yielded the mailing piece. Some of Sanitary Engineers in periodic intervals, book- and circular letters and the leads which result by pects.

"Better Plumbing at Moderate Cost"

has been designed to create business for you. It will create in the mind of the reader a desire for something better in the way of plumbing fixtures. It carries your name and your name only, on the front cover, and tells in an effective way of the service you are prepared to render. It shows some attractive bathroom, sink and laundry tub arrangements and suggests to the reader many ways in which the house plumbing may be improved upon.

You Need These Booklets

Your business needs "Better Plumbing at Moderate Cost," and will benefit from their distribution.

Your Supply Now—

THEY'RE FREE

oupon below or just tear out this whole page and mail it ng the number of booklets you can use.

PORT HOPE SANITARY MFG. CO., LTD.
ROYAL BANK BLDG., TORONTO, ONT.

Please send me by return mail ..... copies of "Better Plumbing at Moderate Cost."

It is Understood That This Does Not Obligate me in Any Way.

Firm Name .....

Address .....

Sender's Signature.....

fg. Company, Limited

TORONTO

Winnipeg Office:
405 TRIBUNE BLDG.

Montreal Office:
301 SOUTHAM BLDG.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

Markets at a Glance

AN EXAMINATION of price changes on the current sanitary markets, reveals a smaller number of primary revisions, with the general tendency remaining firm. A new list on steel piping, No. 56, supersedes the previous list which has been in effect since last December. This provides higher quotations on both buttweld and lapweld, black and galvanized steel piping. In conjunction with this development, prices on wrought nipples and couplings are advanced through a general revision of five points off the discounts. A slight upward revision is also noted on larger size boiler tubes in some quarters, thus reflecting the continued strength apparent in the steel industry.

THE upward trend of pig iron prices has resulted in rising production costs on numerous foundry products, such as enameled ware, radiators, soil pipe, wrought piping and similar goods. Steel products in general also retain their recent strength, galvanized sheets remaining active, while trough and conductor pipe, range boilers, and other products in this group, reflect the general improvement.

THE recent mining resumptions in certain soft coal areas are not being counted upon to relieve the iron and steel industry to any great extent, as the rail strike, shortage of cars and priority orders, combine to offset the immediate effect. Therefore, no decided easing in prices is being looked for, as wages have been advanced by many producers, thus adding still further to production costs.

BUILDING activity continues to affect the movement of many steam-fitting and plumbing goods, with both manufacturers and distributors stating that seasonal products are feeling the demand caused through requirements of the prevailing construction work. Farmers are generally assured of a better harvest this year, and it is observed that if market conditions are at all favorable, their increased buying capacity should give marked impetus to future trade relations and open up numerous opportunities for rural business in the sanitary and heating field.

Montreal Markets

MONTREAL, August 29.—The outstanding feature in the markets for plumbing and steam-fitting supplies is the new list on wrought piping showing advanced quotations on practically all sizes of steel pipe. Accompanying this revision are increased quotations on both wrought nipples and couplings. Discounts on all sizes of both these fittings are lowered five points thus recording a price advance of varying extent. The strong tendency in the steel industry still attracts attention, and this is now reflected on boiler tubes, quotations on many of the larger sized tubes being increased. Galvanized sheets continue in a strong market position, this tendency also reflecting on corrugated sheets, eavestrough, conductor pipe and other products manufactured from flat sheets. The market for enameled ware is again described as very unsettled, and it is reported that a move is now under way among distributors to increase quotations.

ADVANCE PRICES ON COUPLINGS AND NIPPLES

Montreal.

Accompanying the new higher list on steel piping is the announcement that both wrought couplings and nipples have increased quotations. Discounts on all sizes of both lines are lowered five points, thus showing an advance of varying extent. Other fittings are unchanged in price, and following are prevailing discounts:

PIPE FITTINGS—

Cast iron fitting	30%
Bronze, cast iron	30%
Do., solid	30%
Do., countersunk	30%
Bushings, cast	32%
Do., malleable	32%
Unions	47%
Flanged unions	30%
Flanged fittings	30%
Dart unions, black, 33	1-3%
Dart unions, galv.	13%
Nipples, ⅛ to 4", close and short	55%
Do., long	60%
Do., 4½ to 8", close and short	45%
Do., long	50%
Couplings, 4" and under	25%
Do., 4½" and larger	5%

Malleable Fittings—

Piece list effective June 1st, 1922. Discount 70-5 per cent.

FAIRLY GOOD TRADE IN RANGE BOILERS

Montreal

Range boilers are reported to be in fairly good demand, activities in building circles continuing to demand supplies. Manufacturers, however, state that distributors are still making purchases in a conservative way, orders being small but quite numerous, and stocks in the hands of the latter are comparatively low notwithstanding the better demand. The undertone of these products is described as fairly firm owing to the strong tone in galvanized sheets and other raw materials of minor importance. The market is also a little steadier at present at following quotations:

RANGE BOILERS:—

5	Gallon	$13.50
12	"	14.00
18	"	15.00
25	"	16.50
30	"	17.50
35	"	20.50
40	"	22.75
52	"	38.00
66	"	60.75
82	"	74.00
100	"	103.00
120	"	117.00
144	"	164.00
168	"	187.00
192	"	210.00

Discounts, Standard weight, 50 per cent.
Extra Heavy, 40 per cent.

STEADY TONE IN COTTON WASTE MARKETS

Montreal.

The higher basis on which the raw cotton market is now placed has reflected little or no change in cotton wastes on domestic markets, and distributors look for a continued steady situation, anticipating no revision in prices until later on in the year at least. Current trade is of a moderate nature at following quotations:

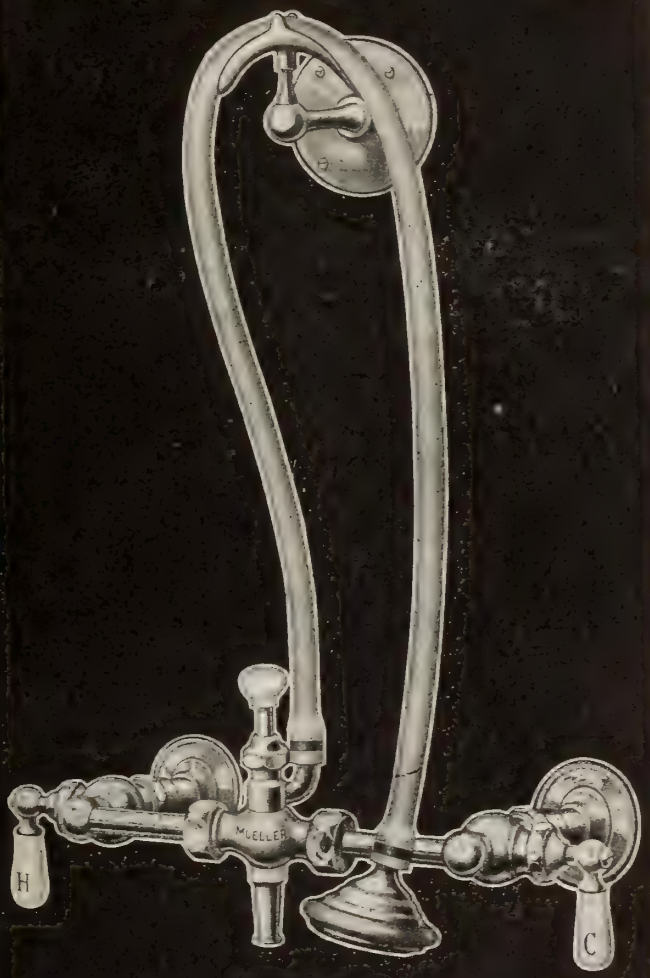
Dominion Wipers—White cotton, 20c; colored cotton, 14c.

COTTON WASTE—Cream polishing, 18c. per lb. White—XXX extra, 16c.; XX grand, 15c., XLCR, 14c.; X Empire, 13c.; X press, 11½c.

Colored—Fancy, 13½c; Lion, 12c; Popular, 9c; Keen, 7½c.

Wool Packing—Arrow, 24c.; Axle, 20c.; Anvil, 16c.

(Continued on page 30)



MUELLER Sink and Lavatory Combination

Of standard Rapidac construction, embodying the celebrated Seven Points of Supremacy, this fixture is one of the most popular MUELLER designs. It delivers hot, cold or tempered water—either in a solid stream from the spout, or in a spray from the flexible nozzle.

A REAL MONEY-MAKER FOR PLUMBERS

Wise plumbers display this popular MUELLER Fixture in their show windows—as an example of the new improvements in plumbing—and with it secure additional business from old and new customers alike.

Write for catalog and prices. Mail orders given prompt attention.

H. MUELLER MFG. CO., LIMITED, SARNIA, ONT.

Water, Plumbing and Gas Brass Goods and Tools.

American Factory at Decatur, Ill., U. S. A. Branches, New York and San Francisco

Mueller Metals Co., Pt. Huron, Mich., Makers of "Red Tip" Brass Rod; Brass and Copper Tubing; Forgings and Castings in Brass, Bronze and Aluminum; Die Castings in White Metal and Aluminum; also Screw Machined Products.

MONTREAL MARKETS

(Continued from page 28)

STEEL PIPING ON NEW HIGHER PRICE BASIS

Montreal

Following a strong tendency in the market for several weeks, a new list is issued on wrought piping, showing increased price levels on practically all sizes of steel pipe. Effective from August 23rd, list No. 56 is now quoted. The firm undertone became more pronounced during the past week or so, a similar increase being announced on southern primary markets last week.

The future trend of piping was considered problematic for some time past, domestic producers describing the market as very firm, but that higher prices were being withheld awaiting further developments in the strike situation and its effect on production costs. Continued increases in pig iron and fuel, however, are said to be the factors responsible for the present increase and for the present at least a firm tendency continues in the market.

WROUGHT PIPE

Price List No. 56 August 23, 1922

Standard Buttweld Pipe S/C

Per 100 feet

Size	Stele Blk	Gen. Galv.	Wrot. Blk.	Iron Galv.
⅛ in.	6.00	8.00		
¼ in.	3.96	6.00	7.20	9.30
⅜ in.	3.96	6.00	7.20	9.30
½ in.	5.02	6.55	7.31	8.93
¾ in.	6 10	7.82	8.86	10.70
1 in.	8.50	11.22	12.58	15.30
1 ¼ in.	11.50	15.18	17.02	20.70
1½ in.	13.75	18.15	20.35	24.75
2 in.	18.50	24.42	27.38	33.30
2½ in.	29.25	38.61		
3 in.	38.25	50.49		
3½ in.	49.68	64.40		
4 in.	58.86	76.30		

Standard Lapweld Pipe S/C

Per 100 feet

Size	Steel Blk.	Gen. Galv.	Wrot. Blk.	Iron Galv.
2 in.	22.20	27.75	31.08	37.00
2½ in.	32.76	41.54	46.80	56.16
3 in.	42.84	54.32	61.20	73 44
3½ in.	50 60	66.24	72.68	89.24
4 in.	59.95	78.84	86.11	105.73
4½ in.	68.58	87.63	1.04	1.21
5 in.	79.92	102.10	1.21	1.45
6 in.	1.04	1.32	1.57	1.88
7 in.	1.38	1.79	2.02	2.45
8L in.	1.45	1.88	2.13	2.58
8 in.	1.67	2.16	2.45	2 97
9 in.	2 04	2.62	2.97	3.59
10L in.	1.89	2.43	2.75	3.33
10 in.	2.43	3.13	3 54	4.28

CLOSET PRICES STILL NOMINALLY UNCHANGED

Montreal

Local quotations on the various closet combinations remain unchanged, prices on these also considered more or less nominal at the present time. As on other lines of enamelware, there has been a certain amount of unsettlement, this becoming more pronounced in recent weeks. A fair amount of business is recorded owing to the continuation of an active building program, and following are prevailing prices:

CLOSET COMBINATIONS—	each
Closet, standard low down outfit	$25 00
Do., post hinge seat	26 00
Do., oak vitro, back strip seat	27 75
Do., oak vitro, post hinge seat	28 40
Do., china tank and back strip seat	28 50
Do., china tank post hinge seat	29 50
Do., vitro white with post hinge seat	30 75
Reversible trap bowl, less spud	11 25
Wash down bowl, less spud	10 00
Richelieu bowl	9 00
Siphon jet bowl	16 25
Extra for spud	0 60
Add for ⅝ in. valve on supply pipe	1 25
Add for bar hinge	No extra
Deduct for supply pipe	0 80
Deduct for floor hinge	0 60
Wood strip seat and cover	3 05
Post hinge seat and cover	4 25
Oak or oak vitro tank, with fittings, less seat	14 25
White vitro, vitreous china or enameled iron tank, with fittings, flush elbow and supplies, less seat	18 50

REPORTED MOVE TO INCREASE ENAMELED WARE PRICES

Montreal.

The local market for enameled ware is again in an unsettled state and certain distributors express themselves in no uncertain manner on the present method of selling at price concessions to obtain business. The quotation on this market is list prices less 33 1/3 per cent., but it is reported that orders have been taken with an extra 5 per cent., and even 10 per cent. quoted in some instances for quantity. Although some improvement over the period of last winter and earlier spring months was evidenced during the summer, this betterment has not been long standing and conditions at present are as bad as they previously were.

As a remedy, one local supply house stated that an increase in general quotations was being considered, and while a move in this direction might not eliminate price-shading, it would allow a larger margin on some lines to offset handling certain wares at little or no profit, such as they were now compelled to do. The high cost of transportation, increased sales tax, and now the higher collection charges through the new stamp tax were pointed out as factors which would not allow easier prices, notwithstanding certain wholesalers are apparently willing to do so.

List prices and nominal discounts follow:

ENAMELED WARE—			
Sinks, roll rim—			
18 x 30			$23 00
Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$ 7 50	$ 7 40	$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in wide			51 40
Bath tubs, 5½ feet.			57 10
Lavatories—			
17x19 in. Apron F139 or P4045			15 30
18x24 in. Apron F154 or P3845 or P3847			23 60
18x21 in. Apron F169 or P4205			17 60
17x19 in. Roll rim. F241 or P4345			12 60
Less 33 1-3 per cent.			

STRONG TENDENCY NOTED IN STOVES AND FURNACES

Montreal

Manufacturers of stoves and furnaces, in outlining the market situation, state that the tendency is still decidedly in an upward direction. The question of a revision in prices however, is very indefinite, higher prices apparently pending the future trend of raw materials and other productive costs. These costs have already increased, but in view of the fact that fall trade will shortly commence in earnest, advanced quotations will be withheld until it is found that they are absolutely necessary, according to one large manufacturer. Bookings for fall requirements have been comparatively small up to the present and reports from merchants throughout the country show that a considerable number of stoves have been carried over from last year. In face of this, however, an active trade is anticipated, commencing perhaps a little later than usual.

DULL TONE REPORTED IN SCRAP METAL MARKETS

Montreal.

The waste material markets are now reported in a dull condition, the midsummer quietness being fully reflected. Nominal quotations are unchanged and the only line showing any strength is non-ferrous metals. Copper and brass scrap are quite steady in sympathy with the tone of virgin copper on primary metal markets. Iron and steel materials are very dull with a slightly easier tendency in some instances. Following are average dealers' buying prices:

Automobile Tires	0 50
Rubber Shoes	0 02
Yellow brass	0 05 to 0 06
Red brass	0 08¾
Light brass	0 04
Scrap zinc	0 03½
Lead, heavy	0 04½
Lead, tea	0 03
Light copper	0 08½ to 0 09
Heavy copper	0 11
Wrought iron, R. Rd., No. 1 per gr. ton.	10 00
Malleable scrap (ton)	9 00 to 10 00
Pipe scrap (ton)	7 00
Heavy melting steel	9 50 to 10 00
No. 2 busheling	3 00
Boiler plate	8 00 to 9 00
No. 1 machinery cast	20 00 to 21 00

GOOD SEASONAL TRADE IN SOIL PIPE FITTINGS

Montreal.

Current trade in soil pipe and fittings continues good, and quite satisfactory for the present season of the year. Rather than the higher quotations, recently announced, tending to curtail buying, manufacturers state that the opposite effect was produced, dealers apparently convinced that the general upward trend in the iron and steel was bound to reflect on these products. The undertone of the present market is described as firm at following discounts:

SOIL PIPE—	
2 and 3 inch	35%
4 inch	35%
5 and 6 inch	Net
8 inch	net
Fittings—	
2 to 6 inch	45%
8 inch	net

STILL FIRM TENDENCY IN CORRUGATED SHEETS

Montreal.

Prevailing conditions in the flat galvanized sheet markets, where a strong tendency is still apparent, contributes a firm undertone in corrugated sheets. Recent advances in the former product have not to date brought a corresponding increase in these products, but manufacturers state that a continued upward trend may mean higher corrugated prices in the fall months. Although the movement is somewhat slower than in earlier summer, it is still fair and quite seasonal. List prices and discounts are the following:

CORRUGATED SHEETS—	Per 100 Sq. Ft.
No. 28 gauge	6 50
No. 26 gauge	7 00
No. 26, U. S. gauge	8 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50

Less 10 per cent.

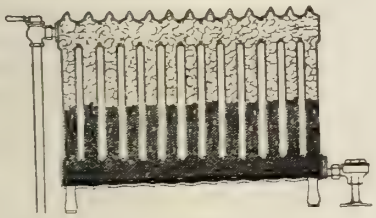
Lighter than 24 gauge and wider than 27 inches, 75c. per square extra.

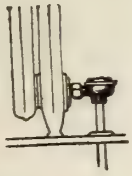
(Continued on page 32)

* No. 13

Steam Heating for City or Rural Homes

Dunham Packless Inlet Valve for convenient and absolute control.





Dunham Radiator Trap lets out the condensate and keeps in the steam—efficiently and noiselessly.

DUNHAM SPECIALTIES:

Packless Radiator Valves, Radiator Traps, Drip, Blast, and High Pressure Bucket Traps, Air Line Valves, Reducing Pressure Valves, Vacuum Pump Governors, Balanced Lever Valves, Oil Separators, Suction Strainers, Return Traps, Return Pumps (electric).

*This is the thirteenth of a series of talks on steam heating appearing monthly in this magazine.

You will find them all very interesting and of help in your daily work.

The application of Dunham Steam Heating is being extended rapidly by Heating Contractors. Through actual experience in their own installations they have proved that it is just as adaptable to **homes** as it is to large buildings.

The merits of Dunham Steam Heating in large buildings have been universally recognized. Contractors advocating and installing Dunham Steam Heat in homes do so because it provides the same characteristic services:

Simplicity in operation.

Quick response to changes in outside temperature.

Individual radiator control with Dunham Packless Valve, which admits as much or as little heat as required.

Freedom of circulation through each and every radiator, insured by the Dunham Radiator Trap attached at outlet of radiator.

No noise; no cold radiators.

Ideal heat in spring and fall when only a little fire is required, and unsurpassed efficiency in bitter cold weather.

Users of Dunham Heating often remark, "Zero or below has caused us to appreciate still more our Dunham System."

Your customers want the best and they are depending on you to advise them.

'Phone or write any Dunham Office for information or assistance in putting your Dunham Steam System proposal before your customers.

The DUNHAM REG. TRADE-MARK HEATING SERVICE

(Made in Canada)

C. A. DUNHAM CO., Limited, TORONTO, ONT.

Halifax Vancouver Winnipeg Ottawa Montreal Calgary

London, Eng.: **18 St. Thomas Street, S.E. 1.**

MONTREAL MARKETS

(Continued from page 30)

UPWARD REVISION IN BOILER TUBE PRICES

Montreal.

A further change is made in boiler tube quotations, many sizes showing increased price levels. These revisions appear for the most part on the larger sized tubes, all sizes from 2½ inch up being advanced. The upward swing in the steel industry generally, is now reflecting on these products, quotations on primary markets having recently been advanced. The movement of boiler tube is only fair and following are new higher prices:

BOILER TUBES—	Seamless	Lapweld
1 inch	19 00	.....
1¼ inch	20 00	.....
1½ inch	20 00	.....
1¾ inch	22 00	.....
2 inch	20 00	.....
2¼ inch	22 00	18 00
2½ inch	25 00	21 00
3 inch	31 50	27 00
3½ inch	37 00	31 00
4 inch	46 75	39 50

INCREASE IN BAR IRON PRICES ANTICIPATED

Montreal

Iron and steel bar products remain at unchanged base prices, notwithstanding other domestic markets record a further upward revision. An advance in prices locally was anticipated last week, and in discussing a probable change this week the feeling is almost general that higher prices are pending. Local producers state that although there is reason for greater hopes in connection with the coal strike situation, the immediate outlook is little changed and they are still faced with importing higher priced fuel from overseas. There is also said to be a slightly better buying movement among jobbing houses and indications are that future demand will also assist towards maintaining a firm attitude in the market. Unchanged price levels are as follows:

Common bar iron, 100 lbs.	3 15
Refined iron	4 65
Irish finish machinery steel	3 20
Mild steel	3 15
Single reeled machinery steel	5 25
Band steel	3 50
Spring steel	4 75
Sleighshoe steel	3 15
Tire steel	3 35
Harrow tooth steel	3 30
Toe caulk steel	4 05
Mining tool steel, per lb.	0 20¼
Black Diamond tool and cast steel, per lb.	0 20½

NOTE—Refined iron is approximately $1.50 per 100 lbs. over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs. extra.

STRENGTH STILL NOTED IN SHEET MARKETS

Montreal

Notwithstanding quotations on galvanized sheets have for some weeks past been on an upward trend, and a firming tendency been ever present, the undertone of the market is still described as strong. One factor which has offset the former stronger tone to a degree in recent weeks is the somewhat lighter demand. The usual summer slackening has reflected in these products as in most iron and steel lines. However, this has failed to cause any weakness, and distributors anticipate a firm market for Fall. It is pointed out that trade will soon commence to improve, and with regard to imports from the United States there is, according to dealers, little hope of any quantities from this source for some weeks, even with a resumption of more normal activity at the mills. The English market is reported as steady to firm, and will likely continue so in face of a bigger demand after the summer months. There is little or no change in tin plate or Canada plate, with quotations remaining at revision of a few weeks ago.

BLACK SHEETS—		
10 gauge, base	4 00	4 50
12 gauge	4 10	4 60
14 gauge	4 20	4 70
16 gauge	4 30	4 80
18-20 gauge	4 55	5 05
22-24 gauge	4 60	5 20
26 gauge	4 65	5 25
28 gauge	4 75	5 35

Sheets, 36" wide, 10c. per 100 lbs. extra.

GALVANIZED SHEETS—		
Queen's Head—		
28 gauge	7 25	7 50
26 gauge	7 00	7 25
24 gauge	6 40	6 65
22 gauge	6 05	6 30
18-20 gauge	5 35	5 60
Other Brands—		
10¾	7 00	7 25
28 U. S. gauge	6 60	6 85
26 U. S. gauge	6 30	6 55
24 gauge	6 15	6 40
22 gauge	6 15	6 25
16 gauge	5 85	6 10

Theses prices are for full bundles, an extra charge of from 25c to 35c is made for broken lots. Extra for sheets 3 ft. wide, 28 gauge and 10¾ oz., 20 cts. per 100 lbs. Further extra for sheets 4 ft. wide, according to gauge.

TIN PLATE—Coke	
20 x 28 x 100 lb. basis	12 50
20 x 28 IC, 112s	13 00
20 x 28 IX, 112s	15 00
20 x 28 IXX, 56s.	9 00
20 x 28 IXXX, 56s.	9 75
TERNE— PLATE—	
20 x 28 IC, 112s.	14 00
CANADA PLATE—	
Dull, 52s	5 00
Dull, 60s	5 10
Blued 52s	5 25
Blued 60s	5 35
Welsh, polished, 52s	7 00
Welsh, polished, 60s	7 25
Galvanized, 52s.	7 25
Galvanized, 60s	7 75

COMPRESSION GOODS ON STEADY MARKET

Montreal.

There is little or no change to report in valves and bibbs, discounts remaining steady with a fairly firm tone in the market. Current trade is a little quieter but distributors consider present business as quite seasonal. Following are present discounts:

Compression work, standard	45%
Fuller work, standard	30%
Quick opening compression bibbs	43%
Bath cocks, quick opening	41%
Bath cocks, compression	41%
Basin Cocks Compression	34%
Basin cocks, quick opening	46%
Flatway stop and waste cocks, standard	54%
Roundway stop and waste cocks, st'nd'rd	46%
Brass steam cocks, standard, ¼ in.	50%
Radiator valves, standard	58%
Do., removable discs	58%
Globe, angle and check valves, standard	25%
Gate or straightway	25%
Emco globe valves	33%
Emco check valves	33%
Jenkins globe, angle, check and swing check	19%
Jenkins gate or straightway	25%
Jenkins iron body, globe and angle	15%
Jenkins iron body, gate	33%
N.P. "P' and "S" traps	40%

BRISK DEMAND FOR RADIATORS AND BOILERS

Montreal

A brisk demand continues in radiators and boilers, and manufacturers anticipate an active fall season in later weeks. The movement of these products has been quite active during the whole of the summer months, stimulated by activity in building construction, and with a good demand in coming months a great improvement over last year is assured. A firm attitude is still noted in the undertone of the market and a steady to firm situation is expected for later business. Following are quotations:

RADIATORS AND BOILERS—

Radiator list prices are for 1, 2, 3, 4 and 5,-column radiators per square foot.

45 in. to 38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in, $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60. Discount 59% for hot water and 60 per cent. for steam.

Wall Radiators—5 ft. $1.15; 6 ft., $1.10; 7 ft., $1.05; 9 ft., $1.05; 12 ft. $1.05. Discount 56%

Boilers—Round hot water boilers, low base only (high base discontinued); sizes from 0 to 10, 64% off list.

Square or sectional hot water or steam boilers, 15-in., 20 per cent.

For Ontario Government trimmings add 5 per cent.

Square or sectional steam boilerfs, 19 in. to 36 in., 20 per cent.

Square or sectional steam boilers, 19 in. to 36 in., 20 per cent. Ontario Govt. trimmings, 10 per cent. discount.

Round steam boilers, standard trimmings, 28 per cent. off. Ontario Government trimmings, 25 per cent.

All prices f.o.b. Toronto, Montreal, Guelph,

Toronto Markets

TORONTO, August 29.—The increase in the steel pipe price list, supplies the premier development on the current sanitary and heating material markets. In conjunction with this upward change, quotations on wrought nipples and couplings are advanced through a revision in discounts.

Galvanized sheets continue one of the most active of steel products, and finished goods of which this forms the basic material, such as range boilers, trough and piping, reflect a stronger undertone as a result. Building activity continues to create a brisk movement of seasonal goods including brass compression work, pipe fittings, enameled ware products and radiators. The bar iron market retains a strong tone, while in view of steel production costs keeping up, even in the face of a settlement of soft coal strike conditions, no decided easing in price levels is looked for. Quietness reigns in the non-ferrous metal group, with lead remaining the strongest in this market.

(Continued on page 34)

A Good School Closet

No. 239

The above illustration shows an outfit which has been specially designed for use in schools or other public institutions and which already has given excellent service in numerous Canadian buildings—particularly in the city of Montreal where many hundreds are in continuous use.

The closet bowl itself is made of Canadian Vitreous China—the most durable and most sanitary ware of which a toilet fixture can be made — ensuring many years of unfailing service and a minimum of labor in maintaining perfect cleanliness.

It is of comfortably low design—measuring about 14¼″ in height; it is of simple design and of good substantial weight; it possesses an excellent strong syphonic action, which is assisted by a jet.

Installed with a valve as shown, it is operated automatically by the seat, ensuring a prompt and thorough flushing immediately after use.

The effort has been to incorporate every feature essential to the efficient working of a good school combination; the simplicity of the whole reduces to the minimum any chance of trouble; the result is an exceptionally high-grade equipment at a most attractive price.

CANADIAN POTTERIES
LIMITED

SAINT JOHNS
QUEBEC

Sales handled exclusively through recognized jobbers in plumbing supplies.

TORONTO MARKETS

(Continued from page 32)

UPWARD CHANGE IN PIPE FITTING COSTS

Toronto.

Higher quotations are now in effect on wrought nipples and couplings, through a revision in discounts. This price change follows on the increase announced in wrought steel piping, and the extent of the higher level varies between five and ten per cent. The discounts are lower by five points all through the list, thus bringing the following quotations into effect on the local market for these products:

PIPE FITTINGS—	Per cent
Cast iron fittings	30
Plugs, cast iron	30
Do., solid	30
Do., countersunk	30
Bushings, malle.	32
Do., cast	32
Unions, ¼ in. to 2 in.	47
Do., ⅜ in., 2¼ to 4 in.	47
Flanged unions, std.	30
Flanged fittings	30
Dart unions, blk., ¼ to 2 in.	33½
Do., ⅛ in., 2¼ to 4 in.	23
Do., galvd., add to black	30
Nipples, blk., and galvd. ⅛ to 4 in. close and short	55
Do., 4½ in. and larger	45
Do., long, ⅛ in. to 4 in.	60
Do., 4½ in. and larger	50
Do., running thread	35
Couplings, 4 in. and under	25
Do., 4½ in. and larger	5

MALLEABLE FITTINGS—
New piece list, effective June 1, 1922. Discounts, 70 and 5 per cent.

QUIETNESS RESTRAINS BOILER TUBE PRICES

Toronto

The local boiler tube market is still in a nominal condition, although the recent upward climb of raw material and production costs is reflected in the prevailing tone. There is only a fair movement of tubing at present, and this quietness naturally prevents distributors of boiler tubes from marking up prices in accordance with higher levels recently effective on numerous other manufactured steel products. A slight upward revision in prices has been announced in eastern centres, this change being principally on larger sizes. The upward movement noted in southern primary markets has not yet been followed locally, due to the elements described above. Following is the current average list of prices on lapweld and seamless tubing:

BOILER TUBES—

	Seamless	Lapweld
1 inch	19 00	.....
1¼ inch	20 00	.....
1½ inch	20 00	.....
1¾ inch	21 50	.....
2 inch	20 00	16 00
2¼ inch	22 00	19 00
2½ inch	22 00	20 00
3 inch	27 00	24 00
3½ inch	32 00	28 00
4 inch	41 00	35 00

RISING COSTS NOTED IN ENAMELED WARES

Toronto

Some improvement has been recently noted in the market for enameled ware products such as sinks, lavatories and baths, due to the upward trend of prices on such basic elements as foundry iron and fuel. For a brief time, this development was reflected in the elimination of price-shading on these goods which was formerly noted. In certain quarters, however, this tendency to offer special or extra discounts for quantity purchases, is reported to have again become evident, in spite of relatively higher production costs. For the present, no change has been made locally from the following nominal quotations:

ENAMELED WARE—	
Enameled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.	51 40
Do., 5½ ft.	57 10
Lavatories—	
17x10" Apron F139 or P4045	15 30
18x24" Apron F154 or P3845 or P3847	23 60
18x21" Apron F169 or P4205	17 60
18x21" Roll Rim, F197, F199 or P4655-6	15 40
17x19" Roll Rim, F241 or P4345	12 60
Sinks, Roll Rim, 16x24 in.	18 10
Do., 18 x 30 in.	23 00
Do., 20 x 30 in.	24 70

Sinks, Flat Rim—	3 only	2 only	1 only
16x24	$7 60	$7 70	$7 80
18x30	8 50	8 60	8 70
20x30	9 70	9 80	9 90

Above prices, list, less 33 1-3 per cent.

All steel enamel baths, 4 and 4½ ft.	$14 00
Do., 5 ft.	15 00
Do. 5½ ft.	16 75

Steel bath quotations are net.

GOOD OUTLOOK FOR RADIATOR TRADE

Toronto.

The installation of heating equipment in the numerous dwelling houses and other buildings erected during the current season, continues to reflect a good call for radiators and boilers. Prospects for fall activity in radiators is described by manufacturers and distributors as good, while the prevailing trade in these products is reported brisk. No change has been made in quotations, but the undertone is again strengthened by the recent upward move of foundry iron, fuel prices and production costs generally. Following are current list prices and discounts:

RADIATORS—
Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60.

Discount on 2, 3, 4 and 5 column standard sizes, 59% for water and 60% for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 51% for water and 52% for steam.

Discounts on 1-column hospital size, water 33%; steam 34%.

Wall radiators—5 ft. $1.15; 6 ft. $1.10; 7 ft. $1.05; 9 ft. $1.05; 12 ft., $1.05. Discount 56%.

BOILERS—
Water:
Round 64% off list. Square 15%. off list.
Steam:
Round 28% off list; Square 15%. off list.

FIRM UNDERTONE NOTED IN CLOSET OUTFITS

Toronto

In spite of a brisk movement in closet combinations and fixtures due to the requirements caused by seasonal building activity, an inclination to unsettle the current market tone by reverting to slight price shading on these products for quantity purchases is now recorded in certain quarters. No spread of this condition is evident locally, according to distributors, while manufacturers point to the rising costs of fuel and pig iron as resulting in increased production costs, factors which should in turn develop a rising tendency on the finished goods. No change has been made in the current prices since the last revision in closet seats. Following are prevailing prices:

CLOSET COMBINATIONS, low down	each
Closet, standard outfit, oak	26 00
Do., with post hinge seat	26 20
Do., mahogany Vitro or Pussyfoot with mahogany post hinge seat and cover	28 45
Do., vitreous china, with oak post hinge seat and cover	28 45
Do., vitreous china, with mahogany post hinge seat and cover	28 70
Do., white Vitro or Pussyfoot, with oak post hinge seat and cover	28 45
Do., white Vitro or Pussyfoot with mahogany post hinge, seat and cover.	28 70
Do., enamelled iron tank with oak post hinge seat and cover	28 45
Do., enamelled iron tank with mahogany post hinge seat and cover	28 70
Additions or reductions to above:	
Add for reverse trap bowl	1 50
Add for syphon jet bowl	7 00
For ⅜ in. valve on supply pipe	1 50
Deduct for supply pipe	60
Deduct for floor flange and bolts	0 60
CLOSET BOWLS—	
Washdown bowl with spul	10 60
Reverse trap bowl, with spud	12 10
Syphon jet bowl, with spud	17 00
"Richelieu" bowl	10 50
CLOSET TANKS, low down, Oak, Vitro or Pussyfoot tank, with fittings, less seat	13 20
White Vitro or Pussyfoot tank with fittings, flush elbow and supply	15 65
Vitreous china tank with fittings, flush elbow and supply	18 00
Enamelled iron tank with fittings, flush elbow and supply	18 00
CLOSET SEATS—	
Oak post hinke seat and cover	3 85
Oak wood strip seat and cover	3 50
Mahogany finish post hinge seat and cover	4 05
Oak Richelieu seat and cover	3 50

SLIGHT GAIN IN COPPER PRODUCT SALES

Toronto.

An improved tone is noted in copper and brass products such as sheets, tubing, and rods. The slow mill deliveries have reflected a firm tendency in this market and shipments are described as between eight to twelve weeks behind. Recent sales reports show a slight gain in volume, while virgin metal prices on primary centres keep up well and naturally serve to swell the stronger tone in these semi-finished products. Following are unchanged price levels:

BRASS—	
Sheets base, per lb.	0 23
Rods, base, per lb.	0 20
Tubing, base, per lb.	0 28
COPPER—	
Rods, base, per lb.	0 28
Soft sheets, plain, 1 oz. and heavier, lb.	0 29
Do., plain tinned, 16 oz. and heavier, per lb.	0 36
Do., polished, and tinned, 16 oz. and heavier, lb.	0 41
Tubing	0 32

GALVANIZED SHEETS IN MARKED ACTIVITY

Toronto.

Galvanized sheets continue to be the most active of steel products on the local market. Arising from the brisk seasonal call for sheets in construction and other activities, there has developed increased production of domestic galvanized, but this has also been supported by heavier importation of varying quantities from English mills. Deliveries from southern producers have been more or less delayed by strike conditions. Uncertainty is the keynote in the delivery situation, and it is stated that if the rail and coal strikes were completely settled immediately, matters have now reached the stage where considerable time must elapse before conditions in the steel industry would again be restored to norm-

(Continued on page 36)

CRANE SERVICE

embraces more than 20,000 products, including all the plumbing requirements of bathroom, kitchen, pantry and laundry; valves, fittings and piping for heating, ventilating and refrigeration systems, as well as the most accurately designed steam specialties for the dependable operation of a modern industrial power plant.

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LIMITED
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836 BEAVER HALL SQUARE
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Branches and Sales Offices in all principal cities.

Works:
1280 St. Patrick St., Montreal.

16a

TORONTO MARKETS

(Continued from page 37)

al. The demand for sheets keeps up in unexpected volume and while the movement in some circles is of fluctuating extent, yet the general call for this material is described as such that no stocks are being accumlated. Black and blue annealed sheets are also moving fairly well for this season. Following are average local quotations:

BLUE ANNEALED SHEETS—

[illegible] gauge, base	4 00
12 gauge	4 05
14 gauge	4 10
16 gauge	4 15

BLACK SHEETS—

18-20 gauge	4 80
22-24	4 85
26 gauge	4 90
28 gauge	5 00

A charge of 25c per 100 lbs. is made for less than case lots. An extra 10c per 100 lbs. is also charged on sheets 26 in. wide.

	Queen's Head
28 gauge	7 50
26 gauge	7 25
24 gauge	6 65
22 gauge	6 30
18 and 20 gauge	6 10

	Premier and	Apollo
10¾ oz.	6 75	7 30
U. S. 28, base	6 35	6 90
U. S. 26	6 05	6 60
22 and 24	5 90	6 45
18 and 20	5 75	6 30
16	5 60	6 15
12 and 14	5 45	6 00

An extra is now charged on galvanized sheets, 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20 cents per 100 pounds. Other gauges show no change for different widths.

An extra 40 cents per 100 lbs., is charged for Keystone and Premier brands copper-bearing sheets.

PLATES, CANADA—	Per box
Ordinary, 52 sheets	4 90
Dull, 60 sheets	5 00
Blued and oiled, boxes 52's	5 20
Do., boxes, 60's	5 30

PLATES, COKE TIN—	
IC, 20 x 28, 112 sheets	12 50
IX, 20 x 28, 112 sheets	16 00
IX, 20 x 28, 56 sheets	8 50

PLATES, CHARCOAL TIN—	
IX, 20 x 28, 112 sheets	10 00
IXX 20 x 28, 56 sheets	12 00

PLATES, TERNE—	
IC, 14 x 20, 112 sheets	12 00

GOOD MOVEMENT OF SOIL PIPE AND FITTINGS

Toronto.

Manufacturers and distributors state that there is a good seasonal trade apparent in soil pipe and fittings. The prevailing movement of these products is described as quite satisfactory for the current season of the year, and compares wellwith previous records. The higher quotations recently announced through the issuing of revised discounts, is stated to have acted as a stimulus to the market, and with fall building programs reaching a fair volume, the movement of soil pipe and fittings is expected to continue to an approximate extent during the ensuing weeks. Additional increases which have recently taken place in pig iron prices, serve to add further strength to the undertone of these finished products. Following are prevailing discount levels:

SOIL PIPE—

[illegible]	Less [illegible] 1-3%
[illegible]	Less [illegible] 1-3%
4 inch	Less 33 1-3%
[illegible]	Less [illegible] 1-3%
[illegible]	net

FITTINGS—

2 to 6 inch	Less 45 per cent.
8 [illegible]	net

IMPROVEMENT NOTED IN CORRUGATED SHEETS

Toronto.

A firmer tendency has recently developed in corrugated sheets, which is described as principally due to the prevailing strength in the flat galvanized sheet market. The upward climb of prices on these products has contributed in a large degree to the firmer undertone in corrugated, and local distributors have expressed the opinion that there is liable to be a similar movement in corrugated sheet quotations in the near future. Although the current demand for these products has been affected by the customary summer quietness, an improvement in this direction is looked for during the fall period. In southern primary centres, corrugated prices have attained higher levels, while flat galvanized recently moved up again on both primary and domestic markets. With the current strength of the steel industry generally continuing in effect throughout the ensuing weeks, some change in the following quotations on corrugated sheets is considered in most quarters as quite reasonable:

CORRUGATED SHEETS—	Per 100 Sq. Ft.
No. 28 gauge	$6 50
No. 26 gauge	7 00
No. 26, U. S. gauge	8 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50

Less 10 per cent.

Lighter than 24 gauge and wider than 27 inches, 75c. per square extra.

STRENGTH OF METALS SEEN IN LEAD GOODS

Toronto.

The renewed strength now apparent in ingot lead prices, naturally reflects in the market for finished lead and zinc products. For some time past the virgin metals have been steadily gaining, and while minor fluctuations have occurred, the general trend has undoubtedly been upward, until the current position is described as strong with the future statistical position good. No further price developments on the finished products have been recorded on the local market since the last revision in quotations on lead sheets, lead pipe and traps and bends. This movement has been further confirmed by the recent improvement in primary centres. Current business in these goods is reported very fair for this season of the year, at the folowng quotations:

LEAD AND ZINC GOODS—	
Lead pipe, list, per lb.	0 13
Lead, waste pipe, list, per lb.	0 11
Do., over 8 in., list, per lb.	0 15

Lead pipe is subject to a discount of ten per cent.

Lead traps and bends less, 15 per cent.

Lead sheets, 4 to 6 lbs., sq. ft. in rolls, lb. 80.09½.

Cut sheets, ½c to ¾c lb. extra and cut sheets to size, 1c lb. extra.

Solder wire, per lb.	0 30
Do., commercial lb.	0 22½
Do., strictly, lb.	0 21
Do., guaranteed, lb.	0 24
Do., wiping, lb.	0 21
Zinc sheets, per lb.	0 09 — 0 10

BAR IRON MARKET RETAINS STRONG TONE

Toronto

Following the recent advances in prices on bar products, this phase of the local steel market reports a fair amount of activity, especially for this period of the year. Bar iron is moving fairly well, and there is also noted a scattered call for structural steel. Other bar products, such as hoops and band steel are moving in small quantities. The market tone is still very strong, and in some quarters further advances in current quotations are looked upon as the order of the day. In comparison with the peak of price levels recently attained in southern primary markets, certain local distributors claim that quotations are considered likely to reach a notch higher than is now prevailing, under the assumption that the present conditions continue to reflect the upward swing of the pendulum during the ensuing weeks. Hopes of a settlement in both soft and hard coal areas are now much brighter and this may have some effect in deciding future market movements. However, the additional increase in pig iron prices last week, naturally tends to further strengthen current bar iron quotations. There appears to be little effort to maintain a stated level, but the following is the average list of prices on the local market:

IRON AND STEEL—	
Mild steel bars, base	3 25
Mild steel bands, 3-16 in. base	3 75
Bar iron base	3 25
Angle iron, base	3 35
Horseshoe iron	3 85
Tire steel	3 45
Spring steel 7 00	8 00
Toe caulk iron	4 10
Hoop steel	4 50
Norway iron	12 50
Sleigh shoe steel	3 25
Crucible cast sheet steel	28 00
Mining Drill steel	18 50
Cast tool steel, high grade	30 00
Do., do., Medium	18 00

WASTES NOT AFFECTED BY PRIMARY CHANGES

Toronto.

Although the raw cotton market has been fluctuating, with the average tendency in an upward direction, there has not been any reflection of these conditions in cotton wastes. Distributors state that primary trends of this nature are not immediately apparent in wastes, other factors also governing this market. Current trade continues on a moderate basis, with no specific features having been recorded. Quotations on these goods continue at the following levels:

COTTON WASTES—	
Cream, polishing	0 18
White, XXX	0 18
XX	0 16
X	0 15
XC	0 14
XXX, extra	0 16
XX, grand	0 15
XLCR	0 14
X, Empire	0 13
X press	0 11½
Colored, No. 1	0 13
No. 17	0 12
No. 1A	0 11
No. 1B	0 10
Fancy	0 13½
Lion	0 12
Standard	0 10½
Popular	0 09
Keen	0 07½

Above lines subject to trade discount for quantity

(Continued on Page 38)

A3200 Quaturn Bath Cock

"The Best Made"

That's what sanitary engineers can tell the public when showing Quaturn Fixtures.

The *striking design* and *high finish* carry an instant appeal to the most discriminating buyer and you can always rely upon Quaturn fixtures to "clinch" the sale.

The Quaturn quick opening bath cock illustrated here requires only one quarter turn to open full.

All working and wearing parts are renewable at moderate expense—*the bodies stay installed permanently.*

Specify Quaturn—*The best quick opening plumbing material made.*

Quaturn sales mean quality sales, satisfied customers and repeat orders.

They *cost no more* than any other quick opening material.

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Mr. L. N. Vanstone.

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Mr. G. M. Price.

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Moncrieff & Endress Ltd., Galt Bldg.,
Telephone: A. 9135.

TORONTO MARKETS

(Continued from Page 36)

STEADY QUOTATIONS ON BRASS VALVE GOODS

Toronto

The tone of brass compression goods remains steady to firm, with the current call for these products continuing on a fairly satisfactory basis. A recovery in virgin metals and the slightly upward trend in primary circles has served to sustain current price levels on the manufactured brass goods. Quotations are unchanged at the discounts given below, it being pointed out that seasonal building activity has created a better call during recent months for cocks, bibbs and valves, a movement which is expected to be more or less apparent throughout the ensuing fall season.

VALVES—	Per cent.
Compression work, standard	45
Fuller work, standard	30
Bath cocks, compression	41
Do., Fuller	25
Flatway stop and wastecocks, stand'd.	54
Roundway stop and waste cocks std.	46
Brass steam cocks, standard ½" to 2"	50
Do., 2½" to 3"	43
Globe, angle and check valves, std.	25
Mueller globe, angle and check	25
Mueller composition disc steam valves	33
J.M.T. valves, screwed	20|10
J.M.T. gate valves, screwed	25|10
Jenkins gate or straightway, screwed	25|10
Jenkins globe, screwed	19|10
Radiator valves, standard	58
Do., removable disc	58
Emco, J. D., rad. valves, screwed	33
Emco swing check, ⅜" and ½"	40
Do., other sizes	33
Webster gate valves, screwed	33
Emco globe valves, std.	25
Emco globe valves, J.D., screwed	33
Basin Cocks—	
No. 0 and 1 Fuller pattern	30
Quick opening No. 3633	50
No. 3623, plain or index handle	34

RAW MATERIAL COSTS SUSTAIN BOILER PRICES

Toronto

The improvement recently noted in the movement of range boilers is reported as now reaching a spotty condition. In certain sections dealers note a steady movement, while others attribute activity to the requirements of the large number of new buildings, especially dwelling houses. With construction work not quite so extensive during the fall months as has been the case during recent weeks, others record that the call for range boilers has somewhat subsided. The raw material markets, however, continue strong, and the higher prices now in effect on flat galvanized sheets, have reflected a firmer tone in production circles. The upward climb in raw material costs has served to maintain current prices on the finished goods. No change has been announced from the following list and discounts:

RANGE BOILERS—

Size	List Price
5-gallon	$13 50
12 to 15 gallon	14 00
20-gallon	15 00
25-gallon	16 50
30-gallon	17 50
35-gallon	20 50
40-gallon	22 75
52-gallon	38 00
66-gallon	60 75
82-gallon	74 00
100-gallon	103 00
120-gallon	117 00
144-gallon	164 00
160-gallon	187 00
174-gallon	210 00

Tanks, Standard weight, 50 per cent.
Extra heavy, 40 per cent.

RISE IN FLAT SHEETS REFLECTED IN TROUGH

Toronto.

Manufacturers and distributors continue to report brisk sales of eavestrough and conductor piping, the call for these products keeping up in good proportion, due to the heavier building activities this year. Present prospects indicate a fairly sustained movement throughout the fall period, with the undertone of the market strong, and current price levels firm. It is noted that flat galvanized sheets have recently been advancing in cost, and with a shortage in this class of raw material having developed in some quarters due to the various strike elements, the market for such finished products as trough and pipe naturally reflects the upward tendency in primary centres. Prevailing quotations are unchanged at the following levels:

TROUGH (EAVE)—

O. G. Square Bead—

Per 100 ft.		Per 100 ft.
8 inch	$15 90	15 inch $28 80
10 inch	17 70	18 inch 36 80
12 inch	21 20	inch

O. G. Round and Half Round

8 inch	16 90	15 inch	29 80
10 inch	18 70	18 inch	37 80
12 inch	22 20		

Less 70 and 10 per cent.

PIPE (CONDUCTOR)—

Plain, round or corrugated.

	Per 100 ft. in 10 ft. lengths.
2 in., in 10 ft. lengths, list	18 40
3 in., in 10 ft. lengths, list	22 30
4 in., in 10 ft. lengths, list	29 60
5 in., in 10 ft. lengths, list	40 00
6 in., in 10 ft. lengths	49 00

Less 70-10 per cent

ELBOWS (CONDUCTOR)—

2 inch, list	5 25
3 inch, list	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00

Less 60 per cent.

CAST IRON SCRAP IN UPWARD TREND

Toronto.

There is reported an increasing small movement in copper scrap, but the activity is not large. Aluminum is now showing up considerably stronger than has been the case for some time, and cast aluminum is described as difficult to obtain.

Cast iron is now on the upward trend, due to the rising costs of pig iron, and under prevailing conditions which reveal a shortage in cast iron, an upward price change which will diminish the large spread between cast and pig iron quotations is looked for in certain quarters. Stove plate is also stated to be hard to get.

Scrap rubber continues in the slump, and it is not being sought, while prices are nominal. The following are the usual averages of local dealers' buying prices for fairly large quantities of scrap materials:

SCRAP MATERIALS—

	Scrap Iron	
Gross Tons—		
Heavy melting steel (Hamilton)	$13 00	$13 50
Borings and turnings	6 00	7 00
Rerolling rails	12 00	13 00
Scrap pipe	5 00	6 00
No. 1 railroad wrought	10 25	11 25
Steel turnings (Hamilton)	9 75	10 25
Agricultural malleable	12 00	13 00
Railroad malleable	13 00	14 00
Net tons—		
No. 1 cast	18 00	19 00
Stove plate	15 00	16 00
Grate bars	11 00	11 50
Standard car wheels	14 00	15 00

Scrap Metals		
Heavy copper and wire	10 75	11 25
Light copper	9 25	9 75
No. 1 composition	9 00	9 50
No. 1 comp. turnings	7 25	7 50
Light brass	3 50	4 50
Heavy yellow brass	5 50	6 50
Heavy Lead	5 00	5 50
Tea lead	2 75	3 50
Scrap zinc	4 25	4 50
Scrap Rubber.		
Boots and shoes	2 00	....
Lumbermen's rubber boots	1 25	1 50
Auto tires	0 40	0 50
Solid tires	0 60	1 00

QUIETNESS REIGNS IN NON-FERROUS METALS

Toronto.

The usual mid-summer quietness now reigns in the ingot metal markets. There have been some minor fluctuations in price on primary centres, but these changes have not been of such an extent as to affect the level of local quotations. Lead remains the strongest metal in the non-ferrous group.

While current trading is limited, the trend in ingot metals has been primarily toward higher price levels, for the reason that the accumulated war stocks have now been almost completely absorbed, and such metals as copper, lead and zinc are approaching a normal basis. It is considered that the only barrier to the return of prosperity in metals is the lack of stabilization in foreign exchange, and until that stabilization is reached, a series of ups and downs will be experienced as far as demand and prices are concerned.

COPPER.—Moderate buying exists in copper, both on primary and domestic account. Prices, however, remain firm under the circumstances, southern primary centres recording that while copper consumers are evidently seeking concessions, producers are turning down bids below the current level. Local quotations are unchanged at 17½ cents.

TIN.—The domestic tin market continues very quiet, and primary centres are also dull. Prices are in practically all quarters a shade easier, the downward trend in London leading this phase of the market. Local prices continue at the 36 cent level.

LEAD.—Prices on lead remain very strong and advances have been recorded in southern primary markets. Domestic price levels are unchanged at present, but the $7.50 mark is undoubtedly firm. The reserve stocks of lead have been considerably reduced during the past few weeks, and it is generally conceded that a marked improvement in the statistical position of this metal has been taking place. The market is considered strong.

SPELTER.—This market continues firm but primary conditions are unchanged. There is not much activity to record, but prices are principally steady. The recent strength in zinc is still evident and it is noted that current offerings are limited in quantity. Local prices remain at $8.25.

ANTIMONY.—This metal continues quiet and unchanged, either in prices or market conditions. Local quotations hover in the neighborhood of 6 and 7 cents.

(Continued on Page 40)

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(5) It's made by special machinery for one purpose only.
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Limited

Kitchener -:- Ontario

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The *CEILING PLATE* that's better

OPEN VIEW
NO. 10-A

TOP VIEW
NO. 10-A

Known for its Reliability

is this high quality split ceiling frame. The No. 10A illustrated here, a narrow Flange Plate, is a steel plate with Flanges 3-4 inch wide. Highly finished, especially designed for twin connection "narrow." Made in 1-2 inch to 2 inches inclusive. Our No. 10 has 1 inch flange made in all sizes from 1-4 to 6 inches inclusive. A nice finish is always obtained through the split ceiling plate because it can be attached to mains and risers at the very last and is not exposed during completion of a building on the floors.

Gem No. 4 Automatic Air Valve. This automatic air valve is made of the best brass obtainable and is equipped with high grade carbon. The mechanism is perfect, every valve being guaranteed by us. Ask for a catalog of Steam Specialties. We manufacture many of interest to Canadian Plumbers and steam Fitters.

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A Word about Cleanout Doors

You and I know that clean flues mean coal saving, and the easier cleaned, the oftener cleaned. That's why each Burnham Boiler flue has its own separate cleanout door.

Any flue can be cleaned at any time, regardless of how big or little the fire is.

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Winnipeg Markets

WINNIPEG, August 29.—Current price changes in sanitary and heating materials centre around the advanced quotations on wrought piping and also soil pipe and fittings. Trade in plumbing goods is described as brisk, with the outlook for fall business very promising. The improvement is attributed to the fact that western crops are better than was originally expected, and hopes for a general revival in moderate buying activity are being entertained.

CLOSET OUTFITS IN SEASONAL ACTIVITY

Winnipeg.

Closet fixtures and combination outfits continue to record a brisk demand owing to the active conditions in the building industry. Business in plumbing goods is increasing generally, and the outlook is described as promising, with a firm market prevailing.

GOOD TRADE NOTED IN TROUGH AND PIPE

Winnipeg.

The current market for eavestrough and conductor pipe remains firm, and the prevailing seasonal demand for these products is generally considered good. There have been no revisions in quotations.

GOOD SEASONAL TRADE NOTED IN RADIATORS

Winnipeg.

There has been no change in radiators, and prices remain firm. Certain distributors state that they would not be surprised to see an advanced quotation on the market in the near future. Business in heating materials of this class is described as exceptionally good.

HIGHER QUOTATIONS ON SOIL PIPE AND FITTINGS

Winnipeg.

Advanced quotations are reported on both soil pipe and fittings, the extent of the increase varying on the different sizes. Two and three inch is quoted at less 15 per cent., four, five and six inch less 25 per cent. The revised discount on fittings are two to three inch less 35 per cent. Four, five and six inch less 40 per cent. A shortage of raw material due to poor transportation facilities and the delayed deliveries due to the rail strike has caused the market to firm up. The demand for soil pipe and fittings is keeping up well and the season's volume has been very satisfactory.

HIGHER PRICE LIST ON WROUGHT PIPING

Winnipeg.

Wrought piping has been advanced in price, and the new list of prices is given herewith. A strong undertone in this market has been evident during recent weeks, and the change in the upward direction was more or less anticipated.

WROUGHT IRON PIPE

	Black	Galv'z'd
¼"	5 41	9 24
⅜"	4 68	7 12
½"	4 82	7 26
¾"	6 15	9 55
1"	10 45	13 72
1¼"	14 15	18 56
1½"	16 90	22 26
2"	22 72	28 87
2½"	36 00	47 22
3"	47 00	67 77
3½"	61 10	78 28
4"	72 36	93 28
4½"	84 27	107 15
5"	98 28	124 92
6"	127 47	162 03

GALVANIZED SHEETS SCARCE WITH FIRMER TONE

Winnipeg.

There is a good demand for galvanized sheets and the market is ruling firm. Deliveries are effected by the rail and coal strike complication. American and Canadian manufacturers, due to the shortage of fuel, have reported that they cannot take orders or promise shipments inside of from 60 to 90 days. Local wholesalers' stocks are about depleted. Prices remain firm.

NO CHANGE RECORDED ON COMPRESSION GOODS

Winnipeg.—With the undertone of the market for the various lines of brass valves and bibbs remaining firm, there is no change in prevailing prices. Reports from manufacturers state that although raw material has increased they have decided to maintain present quotations for the present time at least. There is a fair amount of business owing to activity in building circles and prices show no change.

LEAD PRODUCTS SHOW A FIRMER TONE

Winnipeg.—Practically all metals on primary markets are recorded with a stronger tendency. This firmer tone continues to reflect on lead and zinc products. Quotations on finished products remain unchanged, but with the firmer tone of the market an advance in the near future can be looked for.

OBITUARY

St. John, N. B.—The death of Jacob S. Brown occurred in the city yesterday morning at the age of 82 years. He was a life-long resident of the city and conducted a tinsmith business on Dock Street until the last fifteen years, when he has been employed with John Wilson.

PERSONAL

Kitchener.—Norman Amlinger who has been working with a plumbing and tinsmithing firm at Kitchener, resigned and accepted a similar position with the Hemmerly and Brubacher firm in Elmira.

PLUMBERS OBJECT TO PAYING STAMP TAX

(Continued from page 11)

"I think it is quite unfair that the debtor should be made to pay the tax on drafts. A very great percentage of the drafts issued, are, I believe, of the time class, and the manufacturer and jobber in making this kind of draft is really doing business on his customer's paper, that is they obtain money from their bank on the strength of their customer's acceptance of the one, two or three months draft, as the case may be, and as the drawer—not the drawee—is the sole beneficiary in the premises, he is in my opinion, justly entitled to pay the stamp tax in connection therewith, or failing this let him wait until the account is due, and then the debtor will be manly enough, as well, sufficiently patriotic, to place on his cheque, when paying the account, the necessary tax in conformity with the law.

PREDICTS FUEL SHORTAGE

(Continued from page 13)

"Put a whole city on electrical cooking, and your entire electrical plant will have to be remodeled. As for heating houses by electricity, the idea is preposterous.

"Initial expenditure is against the use of electricity, anyway. For the average 6-roomed house, your electrical heating equipment would cost as much as the house itself.

"The only necessary improvement is the increased efficiency of gas manufacture and distribution. Attention will have to be paid to long-distance transmission.

"It's a difficult job to persuade hard-headed business men to make changes, but it's coming. The movement cannot be stopped. It's only a case of money, brains and the necessity—and the necessity is here.

"As far as long-distance transmission is concerned, oil can be shipped long distance in pipes, so why not gas? Natural gas can be shipped for 300 miles at a pressure of 1,000 pounds to the square inch, so why not the artificial product, too?

Dancing at the termination of the addresses closed the evening's program.

The convention concluded with a motor ride, which followed a business session at the Royal Connaught Hotel. Officers for the following year were elected as follows: Col. D. Street, Ottawa, president; C. A. Jeffries, Toronto, 1st vice-president; E. R. Hamilton, Halifax, N. S., 2nd vice-president; G. W. Allen, Toronto, secretary-treasurer pro tem. The executive committee elected is composed of Arthur Hewitt, Toronto; J. S. Morris, Montreal; C. C. Folger, Kingston; R. A. Wallace, Quebec, Que.; J. P. King, Stratford; J. M. H. Young, London; A. A. Don, Ottawa, and V. S. McIntyre, Kitchener. Although it has not yet been definitely decided upon where the next convention will be held, a number of delegates are anxious to have the meetings in Montreal.

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TESTED Soil Pipe

IT COSTS NO MORE AND YOU KNOW THE JOB IS RIGHT

Manufactured by

FORWELL FOUNDRY, LTD.

KITCHENER, ONT.

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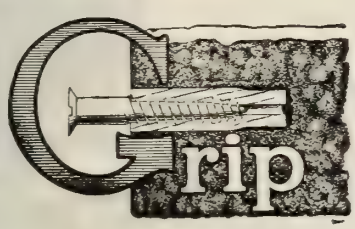
Expansion means



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We Would Make It

There is nothing which will reflect on the workmanship put into a bathroom installation more than to have the wall fixtures work loose after a period of time.

To ensure against this a plug should be used which will enable screws to hold.

Rawlplugs will hold in glass, tile, brick or any other material.

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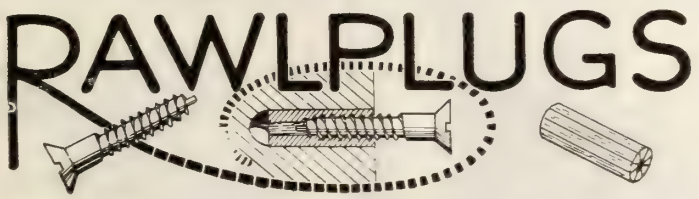

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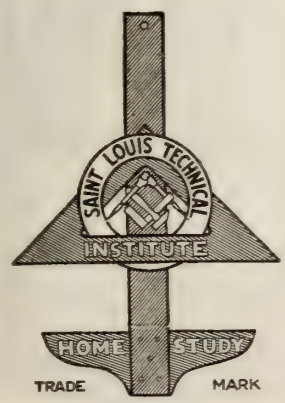

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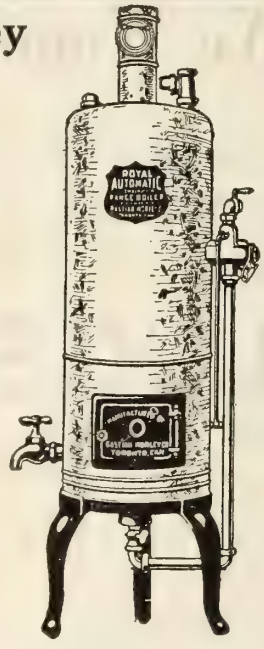

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The Everlasting Veneer Toilet Seat

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This reliable, dependable toilet seat is made of 7 and 9-ply, air-seasoned wood veneer, held together by our special wood cement. This cement is proof against heat, cold or dampness. The veneering is distributed according to the strain and wear required of the different parts. The Everlasting Seat will never crack, warp or split.

It is a splendid seat for use in cold, damp basements where closets must be installed. The Everlasting Toilet Seat will meet, and successfully resist these severe conditions of moisture, changing temperature, etc.

Canadian Veneering Company, Incorporated

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A Satisfactory Climax

When you have given every apparent satisfaction in connection with an important job you can be sure it is not complete without an

E-Z Radiator Hanger

These hangers are easy to put up, simple in construction and should be recommended to all those having their homes remodelled or those building.

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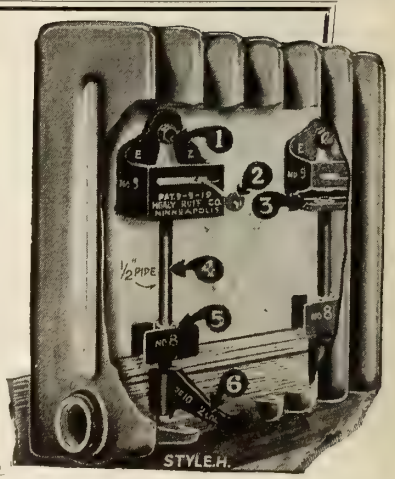

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Beaver Brand Enamelware by its ability to meet the highest demands for service under all conditions, has established itself in the confidence of the public to such an extent that each month witnesses an ever-increasing demand for products of Beaver manufacture.

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"DIAMOND" PIPE FITTINGS

New Prices on

TORONTO Gendron CANADA

Bathroom Fittings and Hardware Specialties

We are glad to be able to announce to the trade a general reduction in prices of our Bathroom Fittings and Hardware Specialties Lines.

The Trying Times of High Prices in these lines is over!

Gendron prices are down to rock-bottom. Write to-day and get our new price lists.

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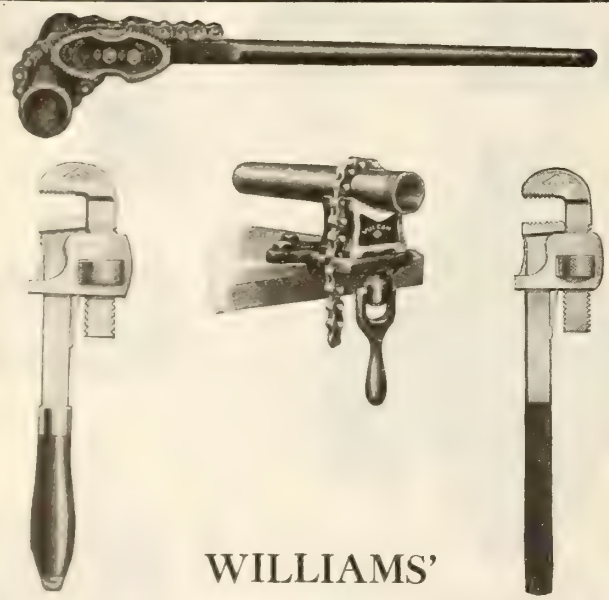
Plumber and Steamfitter of Canada



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We cannot get ALL the orders – but all the orders we do fill are of a higher quality

Write for folders

THE DENNIS WIRE AND IRON WORKS CO. LIMITED
LONDON CANADA

Patented 1921

"Supreme"

Water Heater
(electric or gas)

"Just a Real Good Heater"

Recognized by satisfied users as the most economical and efficient heater on the market.

If you are not selling the Supreme write for our proposition to-day. It's a profitable one.

Manufactured by

Supreme Water Heater Mfg. Company

1 Carlton St. Toronto

The Difference in Advertising Is the Difference in Men

Of itself, advertising is little. And the differences in it are the differences which exist in men.

Just as some men are strong and virile and interesting, so is some advertising. And just as some men are ineffectual and weak and boring, so is some other advertising.

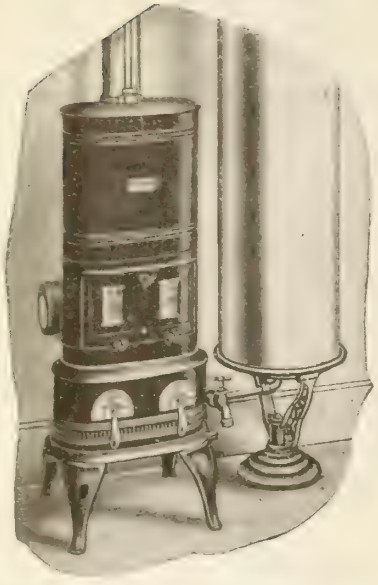
"Does it pay to advertise?" It pays those men who are keen enough students of the public to make it pay them. It pays those men who are truthful, sincere, interesting and believable.

It pays the men whose product deserves the payment, whose brains are keen enough to organize for success and judge enough of the human mind to know how to tell their story with sincerity and interest.

So when you judge advertising, judge it by how it is used and by whom—not of itself and of itself alone.

Remember, an ugly man looks just as ugly in a mirror.

Now's the Day and Now's the Hour— Install McClary's Water Heaters



It isn't everybody that resides in the heart of a city where they can get every convenience possible in the way of coal heating appliances. However, they need not worry when McClary's Water Heaters are available for installation.

These Heaters can be installed anywhere, and distribute a surprising amount of heat.

Another thing is, even if your customers have every other furnace convenience and may be waiting a shipment of coal, show them that they can have all emergency conveniences in any one of McClary's Heaters.

McClary's Florence Oil Water Heater is an independent unit—can be installed anywhere. Simple operation. Washing water 10 minutes. Bath water 40 minutes.

McClary's No. 60 Gas Water Heater double coil of pure copper. Results guaranteed.

Important! Don't forget to ask us about our Electric Water Heater, with three-heat switch for connection with storage boiler. Our nearest Warehouse can supply you.

McClary's

LONDON, TORONTO, MONTREAL, WINNIPEG, VANCOUVER, ST. JOHN, N.B., HAMILTON, CALGARY, SASKATOON, EDMONTON

Kerr Steam Radiator Valves

If you want a real high-grade valve made from the best materials, choose one bearing the name "Kerr."

Discs are of special quality and the hand wheels are as good as can be procured.

No possibility of freezing; seats are so located as to prevent the retention of water in the valve around the seat when steam is shut off and condensation takes place.

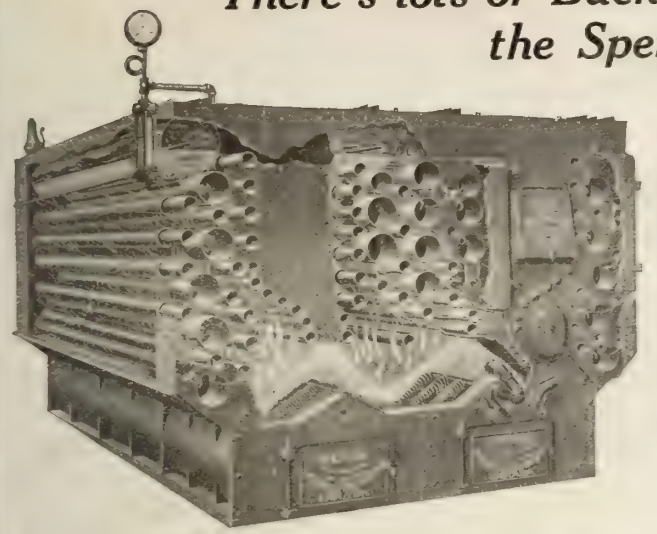
Make sure of getting satisfaction by buying this valve.

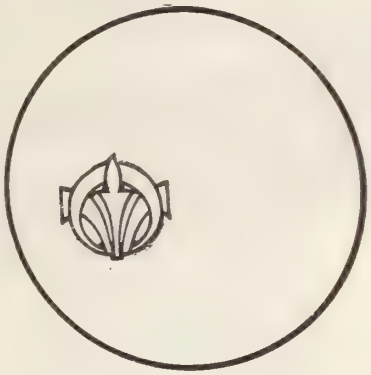
NO. 34.

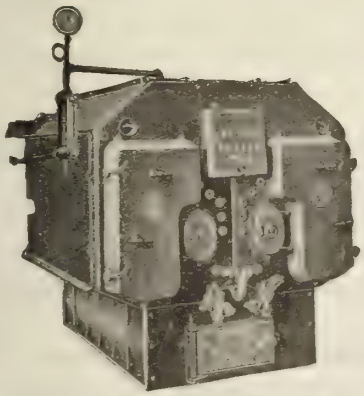
The Kerr Engine Co., Limited

Valve Manufacturers - Walkerville, Canada

There's lots of Buckwheat Coal to be had—and the Spencer burns it!







Steam
27 sizes, 375 to 10,000 sq. ft.

There'll Be Lots of Coal for Spencer Heaters—so why worry?

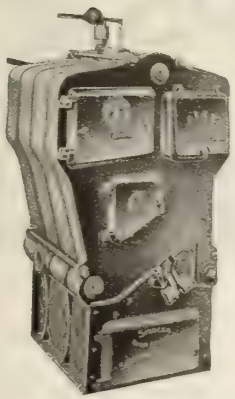
A great many of the readers of this advertisement will be attending the Canadian National Exhibition. Those who do should not miss the opportunity to see the "Spencer" Heater Exhibit; we have many sizes and a wide variety of heaters for offering.

Spencer Heaters have a great reputation for being reliable; are simple in construction, combined with great strength.

Sales should be easy and profitable for you when you have the advantage of offering a "Spencer."

Don't forget to mention the fact that low-grade (buckwheat) coal is burned in Spencer Heaters; however, they burn other kinds of coal (both hard or soft), coke, fuel oil or gas in smokeless manner and with a constant service. They are easy to run and require very little attention.

Ask us about the "Spencer" for if you don't know the facts concerning the Spencer, "it's time you did."



Hot Water—10 sizes,
600 to 3,600 sq. ft.

See Our Exhibit in the Industrial Bldg. (Stove Section) at the Canadian National Exhibition.

SPENCER HEATER COMPANY OF CANADA, LIMITED

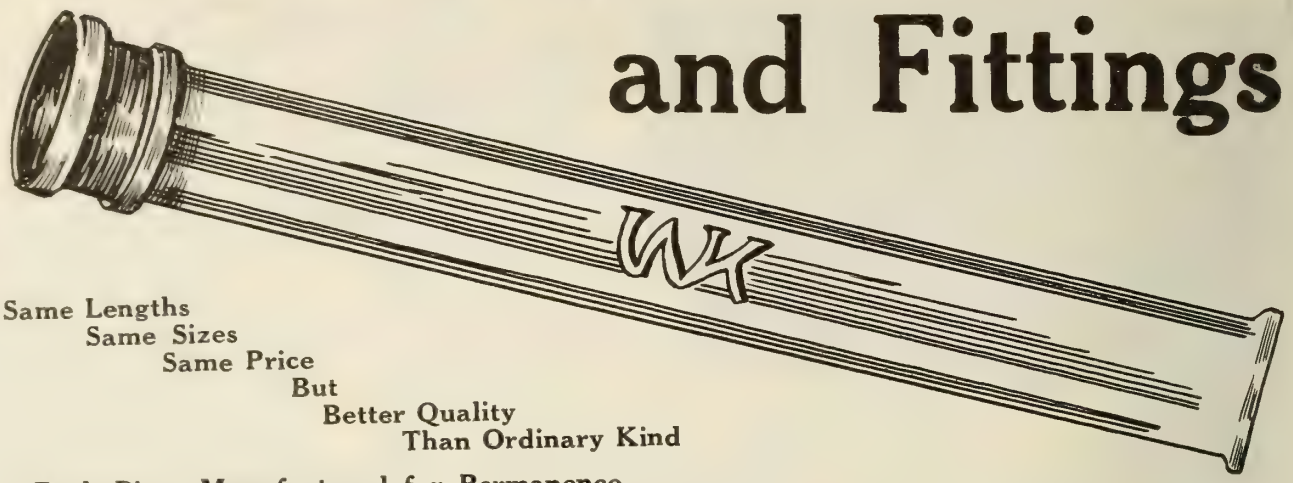
68 Adelaide St. East - Toronto, Ontario

Winnipeg, Man.
185 Portage Ave., E.

Plant
Penetang, Ont.

Montreal, Que.
71 St. James Street

Soil Pipe and Fittings



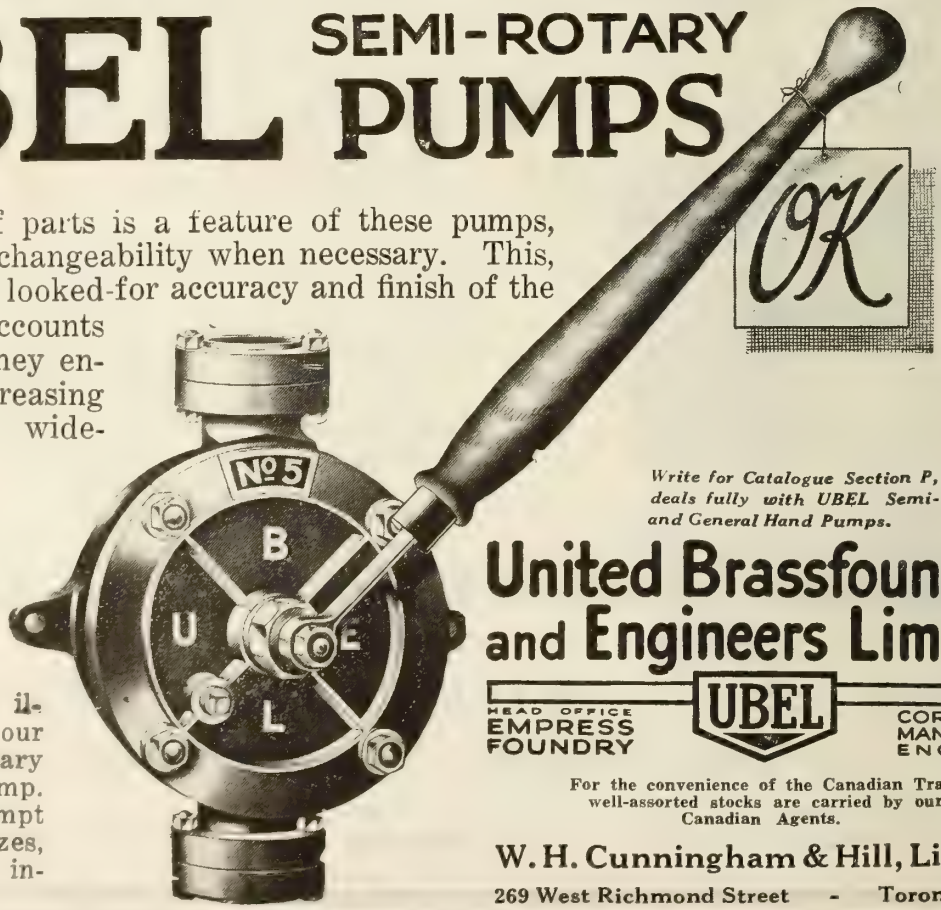
Same Lengths
Same Sizes
Same Price
But
Better Quality
Than Ordinary Kind

Each Piece Manufactured for Permanence.

WARDEN KING, Limited, Montreal

Branch Office: 136 Simcoe St., Toronto

UBEL SEMI-ROTARY PUMPS



Standardization of parts is a feature of these pumps, guaranteeing interchangeability when necessary. This, combined with the looked-for accuracy and finish of the UBEL product, accounts for the fact that they enjoy an ever-increasing popularity and widespread demand.

The accompanying illustration shows our Fig. P 1 Semi-Rotary Double-Acting Pump. We can give prompt shipment of all sizes, from ½ in. to 3 in. inclusive.

Write for Catalogue Section P, which deals fully with UBEL Semi-Rotary and General Hand Pumps.

United Brassfounders and Engineers Limited

HEAD OFFICE EMPRESS FOUNDRY — UBEL — CORNBROOK MANCHESTER ENGLAND

For the convenience of the Canadian Trade well-assorted stocks are carried by our Canadian Agents.

W. H. Cunningham & Hill, Limited

269 West Richmond Street - Toronto, Ont.

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JENKINS

for long lasting Service

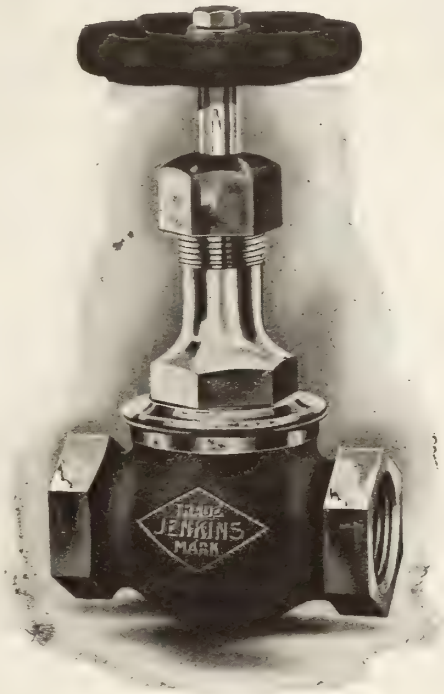

Fig. 106.

JENKINS BRASS GLOBE VALVE

Standard Pattern.

Suitable for 150 lbs., working steam pressure, 250 lbs. working water pressure.

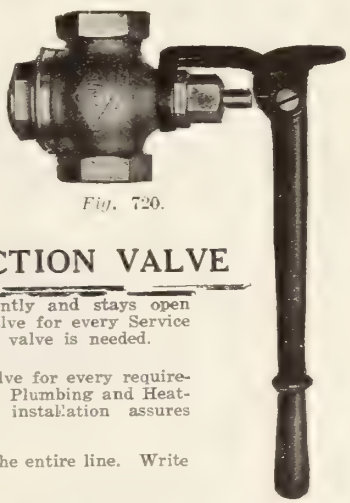

Fig. 720.

JENKINS RAPID ACTION VALVE

Can be opened instantly and stays open automatically. The valve for every Service where a quick action valve is needed.

There's a Jenkins Valve for every requirement of Power Plant, Plumbing and Heating Service. Their installation assures lasting satisfaction.

Catalog No. 8 shows the entire line. Write for free copy.

JENKINS BROS., LIMITED

103 St. Remi St., Montreal.

TORONTO WINNIPEG VANCOUVER

European Branch:

6 Great Queen St., Kingsway, London W.C. 2 Eng.

Jenkins Valves SINCE 1864

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United Brassfounders & Engineers, Ltd., Manchester, Eng.

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Canada Metal Co., Ltd., Toronto.

AIR VALVES
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W. H. Cunningham & Hill, Ltd., Toronto.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
J. H. Wiliams Co., Brooklyn, New York.
United Brassfounders & Engineers, Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.

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Canada Metal Co., Ltd., Toronto.
Gendron Mfg. Co., Toronto.

BENDING SPRINGS
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BOILERS, STEAM OR HOT WATER
Gurney Foundry Co., Limited, Toronto.
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Spencer Heater Co., Ltd., Toronto, Ont.
Warden King, Ltd., Montreal.

BOILER FEED REGULATORS
Empire Mfg. Co., London and Toronto.
C. A. Dunham Co., Ltd., Toronto.

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J. H. Williams & Co., Brooklyn, N. Y.

BOLTS AND NUTS
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Galt Brass Co., Limited, Galt.
Kerr Engine Co., Ltd., Walkerville.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto. Hamilton.
United Brassfounders and Engineers, Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd,. Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.
W. H. Cunningham & Hill, Ltd., Toronto.

BRASS PIPE AND TUBE
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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Wolverine, Ltd., Toronto, Ont.

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Fittings, Limited, Oshawa.

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Galt Brass Co., Limited, Galt.
Empire Mfg. Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, and Hamilton.

CIRCULATORS
J. H. Williams & Co., Brooklyn, N. Y.

CHAINS
Fittings, Limited, Oshawa.
J. H. Williams & Co., Brooklyn, N. Y.

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Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
Galt Brass Co., Limited, Galt.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg., Co., Ltd., Toronto. Hamilton.

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The Weston Pumps, Limited, Toronto.

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H. Mueller Mfg. Sarnia, Ont.

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Fittings Limited, Oshawa.

DAMPER REGULATORS
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W. H. Cunningham & Hill, Ltd., Toronto.

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EJECTORS, STEAM
Kerr Engine Co., Walkerville.
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ENAMELWARE
Amherst Foundry Co., Ltd., Amherst, N.S.
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto. Hamilton.
Port Hope Sanitary Mfg. Co., Ltd., Port Hope.
Standard Sanitary Mfg. Co., Ltd., Toronto.

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Toronto Hardware Mfg. Co., Ltd., Toronto.

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Fittings Limited, Oshawa.
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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto. Hamilton.
United Brassfounders & Engineers, Ltd., Manchester, Eng.
Warden King, Ltd., Montreal.

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Empire Mfg. Co., Ltd., London and Toronto.
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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
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Wolverine Ltd., Toronto, Ont.

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Burrow, Stewart & Milne, Hamilton.
Hall-Zryd, Hespeler, Ont.
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Bastian-Morley, Limited, Toronto.
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James Morrison Brass Mfg., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
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C. A. Dunham Co., Ltd., Toronto.

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J. H. Williams & Co., Brooklyn, N.Y.

JAPANNING
Fittings, Limited, Oshawa.

KEROSENE WATER HEATERS
W. H. Cunningham & Hill, Ltd., Toronto.

LAUNDRY TUBS
The Canada Metal Co., Ltd., Toronto.
Standard Sanitary Mfg. Co., Ltd., Toronto. Hamilton.

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Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

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J. H. Williams & Co., Brooklyn, N. Y.

MALLEABLE IRON CASTINGS
Gurney Foundry Co., Limited, Toronto.
Fittings, Limited, Oshawa.

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Fittings, Limited, Oshawa.

MIXING VALVES
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto. Hamilton.
Port Hope Sanitary Mfg. Co., Ltd., Port Hope.

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RADIATOR FOOT RESTS
Empire Mfg. Co., Ltd., London and Toronto.
Wolverine Ltd., Toronto, Ont.
W. H. Cunningham & Hill, Ltd., Toronto.

PACKLESS RADIATOR VALVES
Kerr Engine Co., Walkerville.
C. A. Dunham Co., Ltd., Toronto, Ont.

PIPE AND RADIATOR HANGERS
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W. H. Cunningham & Hill, Ltd., Toronto.
Healy-Ruff Company, Minneapolis, Minn.

PIPE, BLACK AND GALVANIZED
Canada Metal Co., Ltd., Toronto.
Canadian Tube and Iron Co., Ltd., Montreal.
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Standard Sanitary Mfg. Co., Ltd., Toronto. Hamilton.

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W. H. Cunningham & Hill, Ltd., Toronto.

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W. H. Cunningham & Hill, Ltd., Toronto.

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W. H. Cunningham & Hill, Ltd., Toronto.

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W. H. Cunningham & Hill. Ltd., Toronto.

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PORCELAIN WARE
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

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W. H. Cunningham & Hill, Ltd., Toronto.
The Westco Pumps Limited, Toronto.
United Brassfounders & Engineers, Ltd., Manchester, Eng.

PUMPING SYSTEMS, AUTOMATIC
Canada Metal Co., Ltd., Toronto.
The Westco Pumps, Limited, Toronto.
Beaton & Cadwell Mfg. Co., New Britain, Conn.

RADIATORS
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Lord & Burnham Co., Ltd., Toronto.
Warden King Ltd., Montreal.

RADIATOR HANGERS
Healy Ruff Company.

RADIATOR NIPPLES
Fittings, Limited, Oshawa.

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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.

RIVETS
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The Canadian John Wood Mfg. Co., Toronto.
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United Brassfounders & Engineers, Ltd., Manchester, Eng.

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Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

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Canada Metal Co., Ltd., Toronto.
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Standard Sanitary Mfg. Co., Ltd., Toronto. Hamilton.
J. H. Williams & Co., Brooklyn, N.Y.
W. H. Cunningham & Hill, Ltd., Toronto.

TORCHES
W. H. Cunningham & Hill, Ltd., Toronto.

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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers, Ltd., Manchester, Eng.

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J. H. Williams & Co., Brooklyn, N.Y.

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Galt Brass Co., Ltd., Galt.

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Jenkins Bros., Ltd., Montreal, Que.
The Kerr Engine Co., Walkerville, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.

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Standard Sanitary Mfg. Co., Ltd., Toronto Hamilton.
The Westco Pumps, Limited, Toronto.

WASHERS
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WASHING MACHINES
Gurney Foundry Co., Ltd., Toronto.

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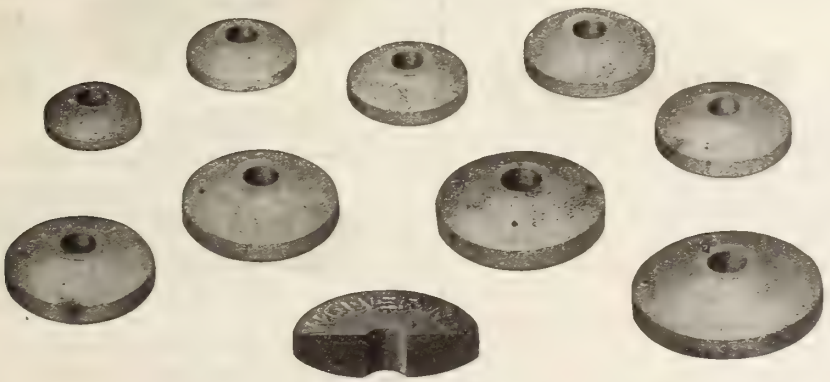
Just The Same As Or As Good As



TAPERED BIBB WASHERS. Figure No. 4402.

If you appreciate the important work a washer has to perform you must realize that there is nothing for you "just as good as" Wolverine Washers. Made from our own formulas—the result of years of experience.

Our lines are complete. It pays to have Wolverine lines on hand for instant use. Order now.

76 Nelson Street **WOLVERINE LIMITED** **Toronto**

The Classified Column.

2 Cents a word or figure
Minimum $1.00.

FOR SALE—PLUMBING AND TINSMITHING BUSINESS for sale in good live town, 50 miles from Toronto. Best reason for selling. Box 117, Sanitary Engineer, Toronto.

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Want to sell your Business?

Want a partner with Capital?

Want some good used equipment?

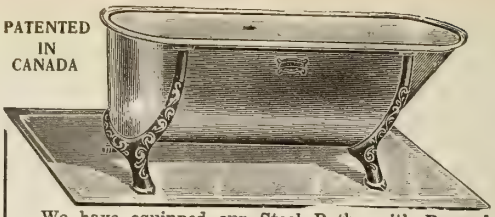
Want to sell some tools or equipment that you are not using?

Sanitary Engineer's

CLASSIFIED COLUMN
WILL HELP SOLVE
YOUR PROBLEM—

SEND ALONG THAT AD TODAY

PATENTED IN CANADA



Better Selling Value Than Ever

We have equipped our Steel Baths with **Pressed Steel Removable Legs** and 3 inch **Roll Rim** around the top, for which we have secured a Canadian Patent. This **Roll Rim** adds greatly to the selling value of

TWEED ENAMELLED STEEL BATHS

They now look like the expensive cast enamel baths but are the **same price as before.**
Our new patent Roll Rim Enamelled Steel Baths are now ready for shipment.—Order samples.

The Steel Trough & Machine Co. Ltd.
Tweed—Ontario—Canada.
Toronto Office: 220 King St. W. Montreal Office: St. Nicholas Bldg.

Plumbers and Steamfitters—

There is only one kind of satisfactory tool and that is one that is in perfect working order. Inefficient tools are a direct liability to you.

Gather up your broken tools to-day, send them to us and we will quickly put them in shape for you.

CANADIAN SERVICE STATION
FOR BEAVER TOOLS

The Pipe Tool and Repair Co.

Adelaide St. W. — Toronto, Ont.

Repairmen to the Canadian Plumber and Steamfitter.

Easier to attach
More permanent
Cost less

Tapped Closet Bend

FARRFHERN ATMOSPHERIC STEAM HEATING SYSTEMS

Are a simple scientific method of circulation, air elimination, and condensation return.

Following natural laws, this is accomplished with a minimum of mechanical equipment.

There are no traps on radiator returns.

There are no air vents on radiators.

Consequently, the contractor is relieved of needless and expensive responsibilities, which will make his Contracts more profitable.

The Farrfhern is a System that eliminates Troublesome come backs, it will create mutual satisfaction.

Send us the plans for your next prospect and submit a proposal for a Farrfhern System on it.

J. E. FARRELL

Sales Representative 210 Galley Ave., Toronto.

WROUGHT PIPE

Suitable for the approaching period of building activity, road construction, etc. This is a line of great importance in making successful, profitable contracts. Our C. T. Brand of Wrought Pipe has been

THOROUGHLY INSPECTED

by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes ⅛-in. to 4-in. Black or Galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your Jobber for C. T. Brand Wrought Pipe

Canadian Tube and Steel Products Co., Ltd.
Operating Canadian Tube and Iron Co., Limited
Works at Lachine Canal, Montreal

The Attractive Design of

'Pussyfoot' Closet Tanks

Adds Finish to Your Bath Room

OUR NEW VALVE

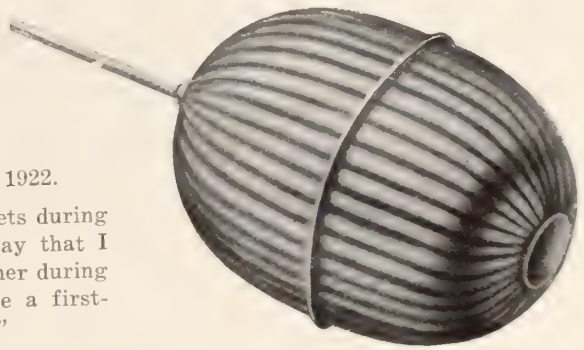
Patent Applied

Gives additional satisfaction with its

QUICK ACTION
SILENT OPERATION
EASE OF ADJUSTMENT

Every valve is tested under 150 lbs. pressure before it leaves our factory.

Simple—
Silent—
Serviceable



Read what ONE of our satisfied customers says :

Windsor, Ont.,
July 18th, 1922.

"I have used a great many Pussyfoot Closets during the past 18 months and am pleased to say that I have had no trouble with these closets, either during or after installation. I found them to be a first-class and well-finished Canadian product."

Order Pussyfoot from your jobber every time

THE CANADA METAL COMPANY
LIMITED

Montreal Hamilton Toronto Winnipeg Vancouver

As Usual

Vitro Leads

VITRO

Vitro New Design Tanks are
Inimitable in quality or design.
They reflect prestige on the installer.
Refuse anything inferior. There's none better.
Order from your jobber.

GALT BRASS COMPANY, LIMITED

GALT - - ONTARIO

Every Tank Tested

VITRO NO TROUBLE TANK

Every Part Perfect

16TH ANNUAL FALL DIRECTORY NUMBER

Sanitary Engineer

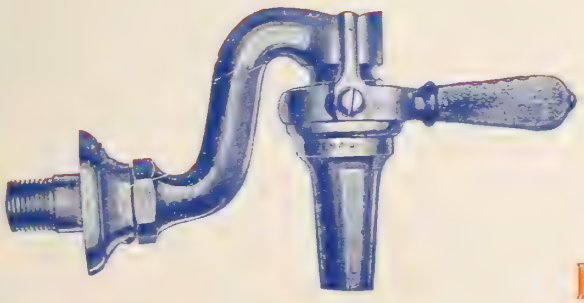
Plumber and Steamfitter of Canada

Vol. XVI. PUBLICATION OFFICE, TORONTO, SEPTEMBER 15, 1922 No. 18

"Join the 'Kitchener' Army"

The "Kitchener" No. A-237 packless, quick-opening faucet is designed specially for kitchen sinks and laundry tubs. A half-turn of the lever turns on a full, solid stream that does not spread or splash.

The extraordinary demand for this popular and efficient bibb prompts us to advise our customers to "join the 'Kitchener' army now—be among the first hundred thousand." You will have to hurry—they are going fast.



A-237
Design Registered

Price: Nickel Plated, Brass Handle, **$2.00 each.** China Handle **$2.15 each.**

F.O.B. our Warehouse.

Empire Brass Manufacturing Co.
Limited

LONDON and TORONTO, Can.

"Plumbers"——

"Pussyfoot"

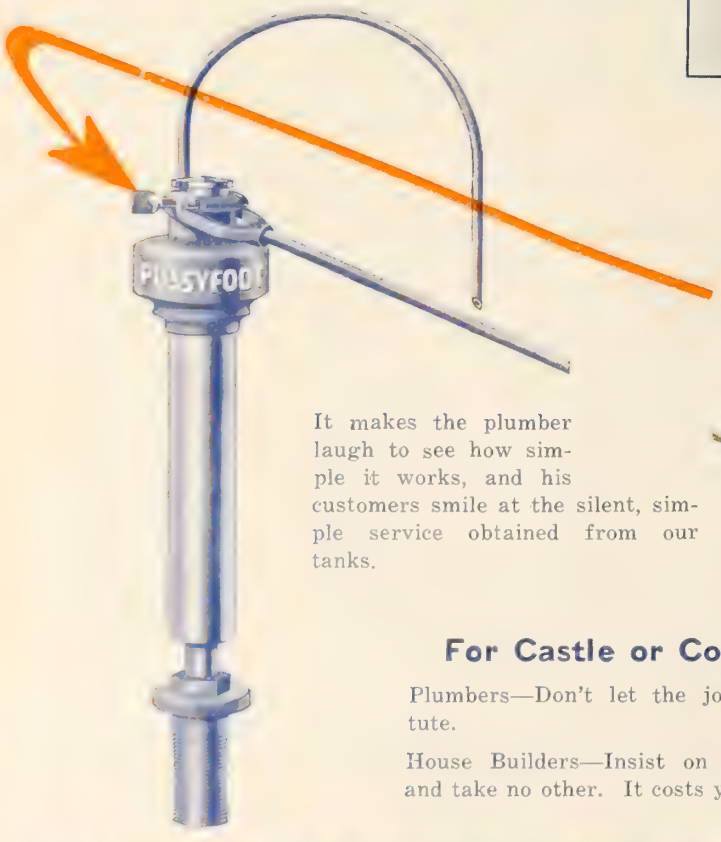
Started Right

with

Three Beautiful Designs

and

Sales of 10,000 Tanks Resulted in the First Year

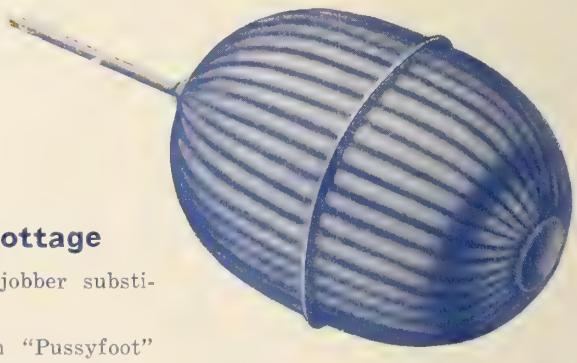


Our New Valve

Silent Simple Serviceable

Is the latest thing in fittings. Not a screw or useless part. Only one bolt; in one moment your valve can be inspected.

It makes the plumber laugh to see how simple it works, and his customers smile at the silent, simple service obtained from our tanks.



For Castle or Cottage

Plumbers—Don't let the jobber substitute.

House Builders—Insist on "Pussyfoot" and take no other. It costs you no more.

THE CANADA METAL COMPANY

LIMITED

Montreal Hamilton TORONTO Winnipeg Vancouver

AIR VENTS

Models For All Purposes—Built to Wear

No. 31

Wood Wheel

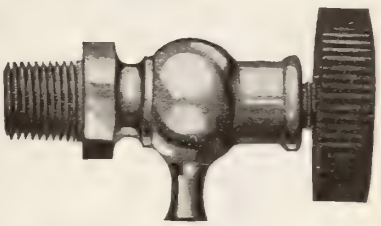
An Air Vent of soft metal that will not stand up under pressure is valueless.

All Air Vents are under pressure — constant pressure — 24 hour pressure.

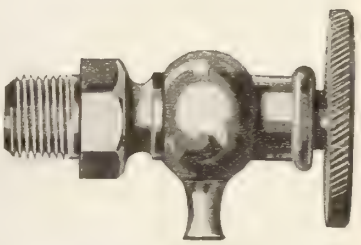
All Air Vents are subject to wide variations in radiation temperatures—to sizzling, scalding, boiling hot water—to biting, cutting steam pressures.

All Air Vents of our manufacture are hard metal cast brass, with seats that will not cut—they resist pressure, give long service and satisfaction with freedom from whistling, leaking, dripping.

The slight additional cost is returned many-fold—once installed they stay installed.

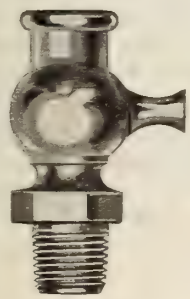


No. 30
Fibre Wheel

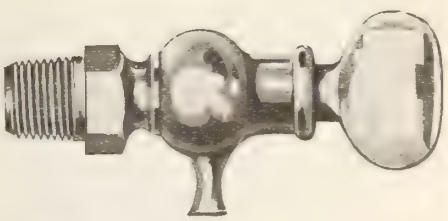


No. 32
Milled Brass Wheel

No. 33



Loose Key



No. 35
Brass Button Handle

The Wallaceburg Brass & Iron Manufacturing Co., Limited

WALLACEBURG, ONT.

TORONTO OFFICE
10 Wellington E. Phone Main 2355.
Mr. L. N. Vanstone.

MONTREAL OFFICE
10 Victoria St. Phone Uptown 945.
Mr. G. M. Price.

WINNIPEG
Moncrieff & Endress, Ltd.,
Galt Bldg. Phone A-9135.

The Utmost in Sanitation

No. 10-SXO

No. 10-XO

The LAKESIDE Syphon Jet Closet With Extended Front Lip and Cutout Back Rim

The "Lakeside" is a Syphon Jet Closet of heavy substantial construction, yet modeled on simple, graceful, dignified lines, with jet pipes concealed and with strong definite syphonic action when used either with tank or valve installation.

When furnished with the extended front lip and cut out back features as illustrated above, this closet becomes positively the most sanitary fixture obtainable—with non-fouling rim both front and rear—a closet specifically adapted for offices, hotels, railway stations or public buildings of any nature—where the utmost in cleanliness and sanitation should be maintained at the minimum of upkeep expense.

Produced in Canadian Vitreous ware, this closet with its dense hard-burned all-clay body and its lustrous deep live-white glazed surface, ensures a life-time of unchanging appearance and unvarying service.

It weighs approximately 65 lbs. net and considering the many advantages of its construction is very moderately priced. Over one thousand of these closets are being used in the new Mount Royal Hotel at Montreal.

CANADIAN POTTERIES
LIMITED
SAINT JOHNS
QUEBEC

Sales handled exclusively through recognized jobbers in Plumbing Supplies

It is not our custom to exaggerate. When we tell you that this "BOT" No. 10½ Closet Outfit is superior to all others, we do so in all sincerity.

This popular-price Combination has never been beaten for appearance or durability and is the finest piece of workmanship and materials ever offered to the Plumbing Trade.

If you have not already had the pleasure of installing one of these high-grade Closets, we request you to use one on your next job. Test them out; they will give satisfaction.

Every customer a satisfied friend.

CANADIAN BRASS COMPANY LIMITED

Galt and Toronto

The Sky's The

BANNER STOVES AND FURNACES

THERE'S no limit to the sales possibilities for Banner Furnaces. Backed up by National advertising, with thousands of enthusiastic owner boosters throughout the country—is it any wonder that Banner dealers are reporting the largest sales in history.

The Banner Pipe Furnace

The Banner Pipe Furnace represents the most satisfactory and efficient warm air system.

Warm air heating with "The Banner Furnace" as the "Heart of the System" provides an ideal method of ventilation and heating.

The Banner is getting the business because it is efficient, satisfactory in every way, and is reasonable in price.

Many features such as cast iron combination chamber, four individual shaker grate bars, large fire door full rated capacity, large roomy ashpit, etc., make the Banner the most desirable line to handle.

More Heat Less Money

The Galt Stove &

GALT -

Representatives for Western Canada:
James McLarty Co.
27 May Street
Winnipeg, Man.

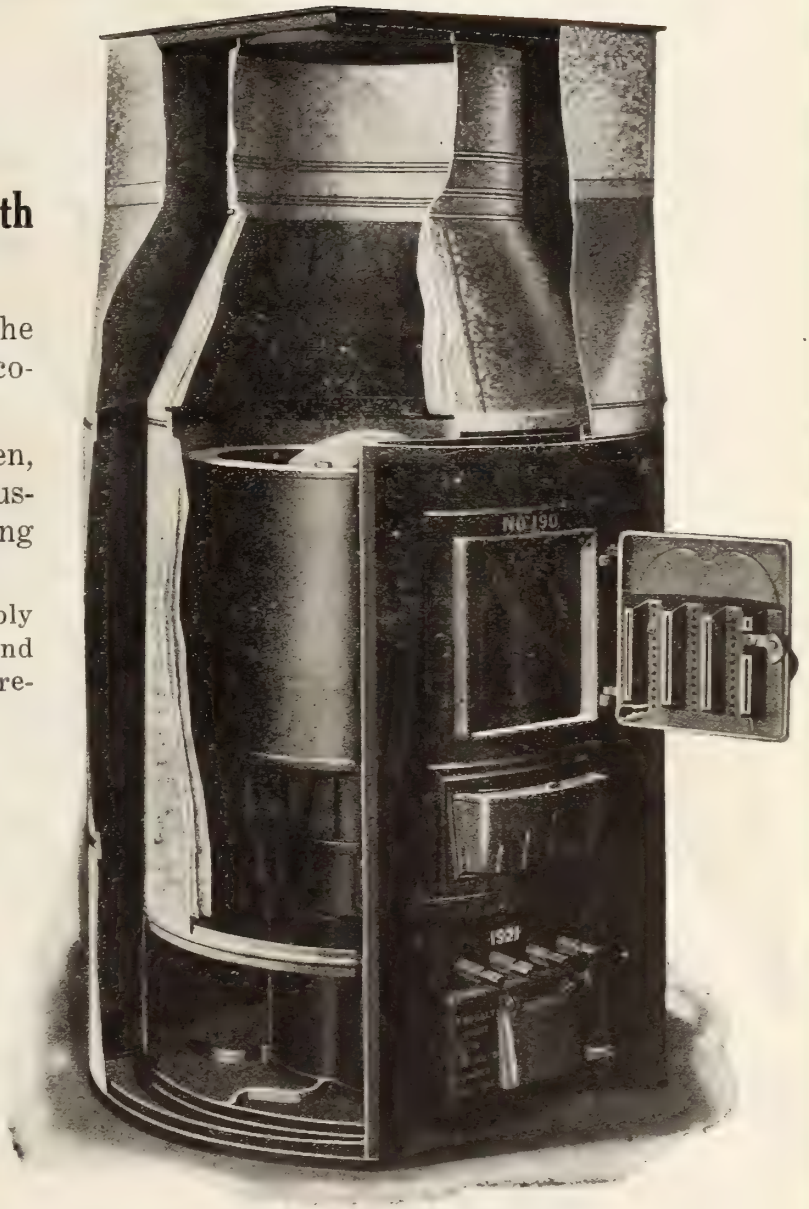
Banner Limit

BANNER STOVES AND FURNACES

If you aren't satisfied with your furnace sales, get the Banner proposition. It's a live one and means extra money in your pocket.

Write to-day for catalogue.

Remember every Banner is unconditionally guaranteed.



Make their homes "Comfy" with a Banner Pipeless Furnace

No matter how cold the climate is, the Banner Pipeless Furnace is efficient, economical, and always dependable.

Because of the satisfactory results given, this furnace has been the choice of thousands of Canadian householders during past winters.

A plumber may instal a furnace with possibly these two objectives: to give satisfaction and create prestige, then to bring a profitable return in his own business.

Every Banner Guaranteed

Well both these wishes will be granted those **installing Banner Pipeless Furnaces.**

Our unconditional guarantee is behind every "Banner" Furnace.

Write us to-day.

Furnace Co., Ltd.
ONTARIO

Representative for Quebec:
R. Lapierre
18 St. Maurice Street
Montreal

For Dependabil

ity and Service Say Anthes!

When a strike tied our Toronto plant up just a month ago at a time when our stocks were depleted, and we were working at capacity to supply the demand existing for soil pipe, fittings and syphons, there was only one thing to do—wire our Winnipeg plant to send us a trainload of soil pipe and fittings on the jump.

It meant a loss to us to do this—a big loss—but the confidence that has been built up in Anthes Products and which has never been shaken in our 28 years of business had to be maintained at all costs. Canadian Sanitary Engineers needed soil pipe fittings—needed them badly to finish contracts already started.

Anthes Foundry as usual was there in the pinch.

For a quality product and dependable service specify "Anthes!"

It's worth while.

Anthes Foundry
Limited

Toronto ***Winnipeg***

Manufacturers of Cast Iron Soil Pipe and Fittings

What The

Here's a sample of what we are showing your prospects

Public Wants!

George M. Cohan, the famous comedian, once said: "Give the public what it wants." And he did. Therein lies the secret of a phenomenal success.

The public want **"Standard"** Plumbing fixtures because they represent latest designs, they are practical and durable. The public want Standard Plumbing Fixtures because our National advertising, read by nearly a million Canadians every month in the year, is teaching them the necessity and value of "better bath rooms."

"Standard" advertising is creating sales for you.

When prospects enter your store and ask for **"Standard"** Plumbing Fixtures, can you supply them?

Standard Sanitary Mfg. Co.
Limited

General Office and Factory: Royce and Lansdowne Aves., Toronto, Ont.

Toronto Store:
55-59 Richmond Street East

Winnipeg Showrooms:
145 Market Street East

Montreal:
New Birks Bldg.

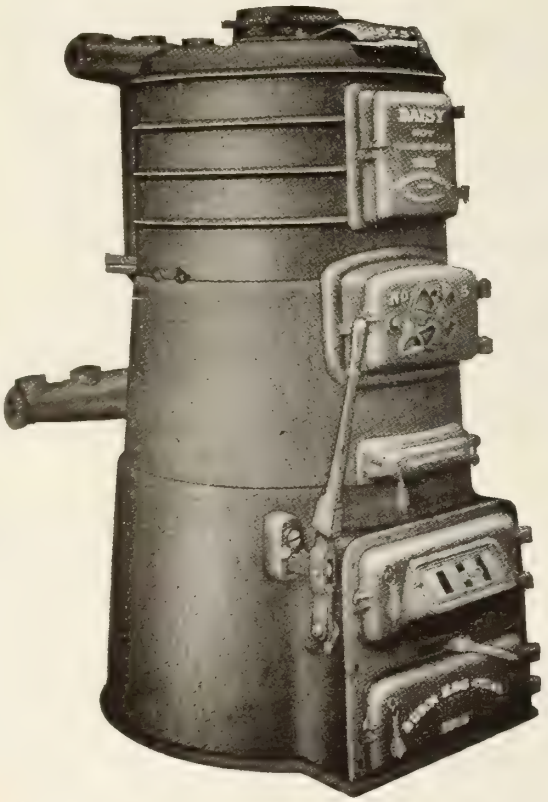
Calgary:
354 11th Avenue West

Hamilton Store:
26-28 Jackson Street West

Vancouver:
860 Cambie Street

"MADE IN CANADA"

BUI



All the experience of years of successful manufacturing goes into the construction of the Daisy.

The finest materials and the most skillful mechanics are used in the production just as the experienced staff of Daisy engineers completed the design.

Warden-

Montreal

LT!

Man—the Daisy is built—and built well—built to give satisfaction—satisfaction that leads to increased sales—built to be a monument to the discrimination of the Engineer who installed it—built to be the most efficient heating unit on the market—which it is.

No other heating unit can offer the sales possibilities possessed by the Daisy.

Write for particulars to-day.

King, Limited

and Toronto

BEAVER BRAND
Porcelain Enamel Ware
—*Your Guarantee of Quality*—

Beaver Brand Enamelware by its ability to meet the highest demands for service under all conditions, has established itself in the confidence of the public to such an extent that each month witnesses an ever-increasing demand for products of Beaver manufacture.

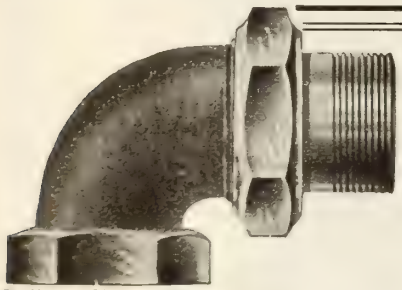
Amherst Foundry Co., Limited

General Offices and Factory : Amherst, N.S.

Agents :

Ontario :
Monarch Brass Mfg. Co.
71 Brown St., Toronto

Manitoba and Northwest :
E. B. Plewes
197 Princess St., Winnipeg



Radiator Union Elbows—Brass
No. 41.

Kerr N. P. Union Elbows
for Radiators

In construction, design and quality of material and workmanship, these Elbows are equal to our popular line of Radiator Valves.

They have the standard angle or centre to face, and assemble on Radiators with equal facility with our Standard Steam and Hot Water Radiator Valves, thus avoiding pipe fitters' troubles with valves of long or short centre to face dimensions. Kerr Union Elbows and Union Radiator Valves make for a first class heating job.

Each Valve and Elbow is tested before it leaves our works.

Ask for them, and see that you get them.

The Kerr Engine Co., Limited

Valve Manufacturers - Walkerville, Ontario

You Need this BEAVERETTE Die Stock

Try it for 10 Days at our Expense

100,000 in use just like it.

No Other tool like the BEAVERETTE Or as Good

Threads ¼ to ¾ inch without Changing Dies or Bushings

Description of No. 6 Beaverette

The only tool made threading ¼ to ¾ inch without changing dies or bushings. Instantly adjustable to thread standard or variations. Universal chuck avoids bushings. Cuts a thread while changing dies in other tools. Two sets of dies used to cover different thread pitches are always in the tool. Built for years of service — and perfect threads.

Other Easy Working Beavers Adjustable

No. 25—1 to 2 inch
No. 26—1 to 2 in. Ratchet.
No. 41—2 1-2 to 4 inch.
No. 61—2 1-2 to 6 inch.
No. 80—4 1-2 to 8 inch.
No. 90—9 to 12 inch.

Non-Adjustable
No. 3—Jr. Ratchet 1-8 to 1 inch.
No. 4—Ratchet, 1 2 to 2 inch.
No. 23—Plain 1-2 to 2 inch.

Square End Cutters
No. 1—1-8 to 1 in.
No. 2—1-2 to 2 in.
No. 10—Ratchet 2 1-2 to 4 in.
No. 15 — Ratchet 2 1-2 to 6 in.

Universal Chuck Avoids Loose Bushings

Instantly Adjustable —Simply Shift the Handle.

Read What Frank Andrews of Newcastle, Pa., says

Mr. Andrews says, "I bought my first Beaverette in 1909 and for 13 years it has cut perfect threads on all kinds of pipe, good, bad and worse—and it is still going strong. I don't know what stock and die troubles are now for I use Beavers to thread all sizes.

"The time I save in having no loose parts to fuss or bother with is worth hundreds of dollars to me each year. Beavers are an investment for they not only pay for themselves quickly, but they return dividends on their purchase price in the time they save.

"Beavers give more satisfaction and do better work with less effort, in less time, than any tools I know of —and I have used them all. I recommend them to anyone interested in cutting perfect threads with the greatest ease and convenience."

The Borden Company

496 Dana Avenue,
Warren, Ohio, U.S.A.

BEAVER

The Easiest Way To Cut Good Threads

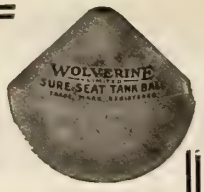
Trial Offer

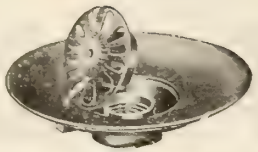
Simply sign your name and address on the blank lines, hand to your jobber, or send to us, and No. 6 Beaverette will be sent to you promptly for 10 days trial. No expense to you whatever.

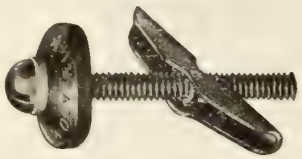
NAME .....

ADDRESS .....

JOBBER .....







Indispensable Stock Articles

Wolverine Tap Plugs—The only plug with a real cutting edge and recessed head—six sizes.

Wolverine Toggle Repairs—A size for every purpose and a sure cure for a leaky boiler.

Wolverine Refrigerator Drain Trap—Every customer a prospect. A real service article.

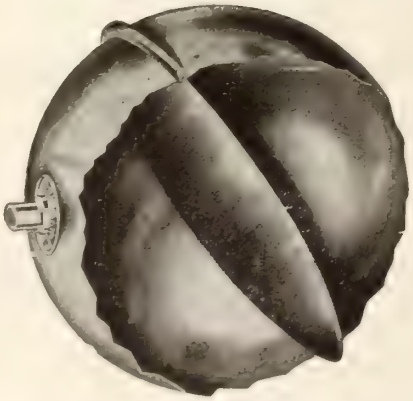
Wolverine Sure Seat Tank Balls—A genuine all rubber no trouble tank ball.

Wolverine Kant Leak 10-oz. Floats—Note two separate compartments. Something different and better—two sizes, 4"x5" and 5".

It pays to have Wolverine articles on hand for instant use. Order now.

WOLVERINE LIMITED

76 Nelson St. Toronto



You'll Like It---

Everybody likes Ames Holden Hair Felt.

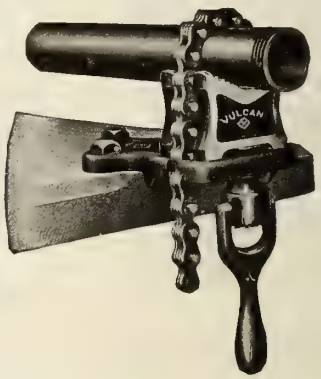
It's clean and free from all dirt and dust, can be easily cut and handled and eliminates all waste.

Ames Holden Hair Felt is admittedly the finest pipe covering on the market.

If your jobber can't supply you, order from us direct.

Insist on Ames Holden Felt. It pays.

Ames Holden Felt Co.,
Limited
Kitchener, Ontario



AMONG a plumber's best friends are his tools and, among his tools, many a plumber claims Williams' "Vulcan" Chain Pipe Vise as his best friend.

It's the **only** Pipe Vise made entirely of wrought steel. 3 sizes for 1/8 to 8 in. pipe.

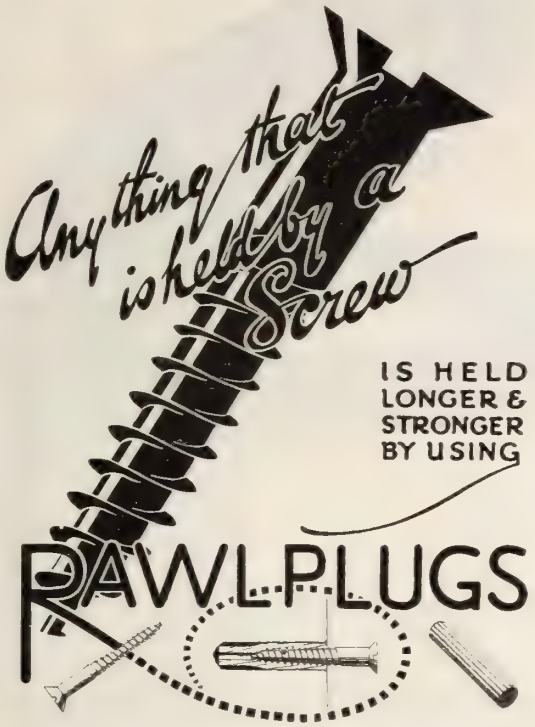
Ask your dealer. Literature?

J. H. WILLIAMS & CO., Limited
"The Drop-Forging People"
77 Thorold Road, St. Catharines, Ontario

"FIX IT WITH RAWLPLUGS"

THIS DEVICE IS INVALUABLE TO ANY SANITARY ENGINEER WHO TAKES PRIDE IN TURNING OUT SUCCESSFUL WORK.

The diameter of the hole you drill is smaller than the diameter of the screw, and consequently the hole is invisible when the screw is turned home. As the screw enters the plug, the stiffened fibre strands of which the Rawlplug is made, expand and an everlasting grip on the surface of the hole is obtained.
It is the quickest, surest and most economical method ever devised for fastening fixtures



WRITE NOW FOR PRICE LIST

Canadian Distributors:

INVENTIONS LIMITED

Sole Agents For

Rawlplug Co., of Canada

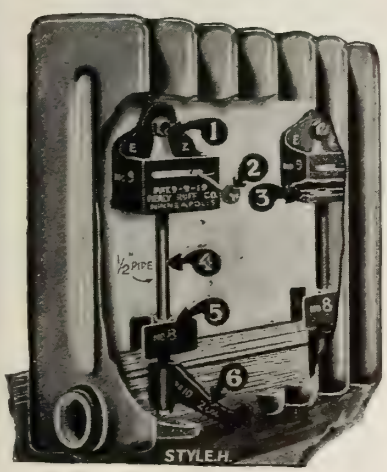
SOUTHAM BUILDING, Bleury St., Montreal.

Sales Agents for Ontario:

DOMINION ENGINEERING AGENCY, LTD., 24 Adelaide St. East, Toronto.

The Rawlplug Co., Inc.
461 8th Avenue
NEW YORK

THEY ARE REAL BUSINESS BUILDERS



HANG IT SECURELY !

—The next time you install a Radiator.

The E.Z. Radiator Hanger brings real satisfaction and a profitable return.
Here is a concise explanation of it:—

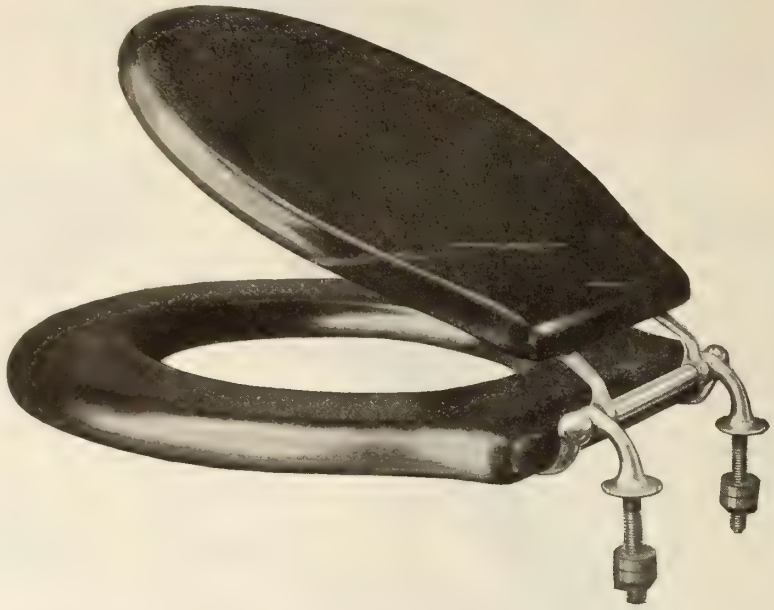
(1) One Bolt.
(2) Invisible Washer.
(3) Horizontal Adjustment.
(4) Vertical Adjustment.
(5) Baseboard Adjustment.
(6) Made for Wall and Column Radiation.

The price is in reach of the average person.

MANUFACTURED IN CANADA

HEALY-RUFF CO. - Minneapolis, Minn.

Shaver Bros., Booth Bldg., Ottawa.
S. T. Hadley, 304 University St., Montreal.
E. T. Flanigan, 229 College St., Toronto.
J. H. Leonard, Tribune Bldg., Winnipeg.
D. G. Brison, Standard Bank Bldg., Vancouver.
A. Walker, 514 McLean Bldg., Calgary.
Eager Coombs & Co., Ltd., Halifax, Can.



At Last a Seat that Will Not Break

"THE EVERLASTING TOILET SEAT"

Made in Canada

Our toilet seats are made of 7 pieces 1/7" veneer put up with our own waterproof cement. Each piece of veneer is full size laid cross wise to each other. This is recognized as the most modern method of building lumber when strength is necessary. It is the same as used for the motor board in the construction of aeroplanes to-day and thewooden part of our seats is fully guaranteed not to split, break nor come apart. If for any reason the seat goes wrong we will replace it free of charge.

7-PLY SEATS

Our 7-ply seats are equalling in thickness the one-inch lumber seat but are far superior in strength and are made to meet the demand of a really good seat at a low price. These seats are put up in paper bags and carefully crated.

9-PLY SEATS

Our 9-ply seat, equalling in thickness to one and a quarter inch lumber seat, is recognized as the strongest seat on the market to-day. It is surely the best value that money can buy though our prices are very moderate. The finish on these seats is of the best quality, and will favorably compare with any other seat. These seats are put up in individual boxes and created carefully and the prices are not higher than any good seat on the market.

Canadian Veneering Company

INCORPORATED

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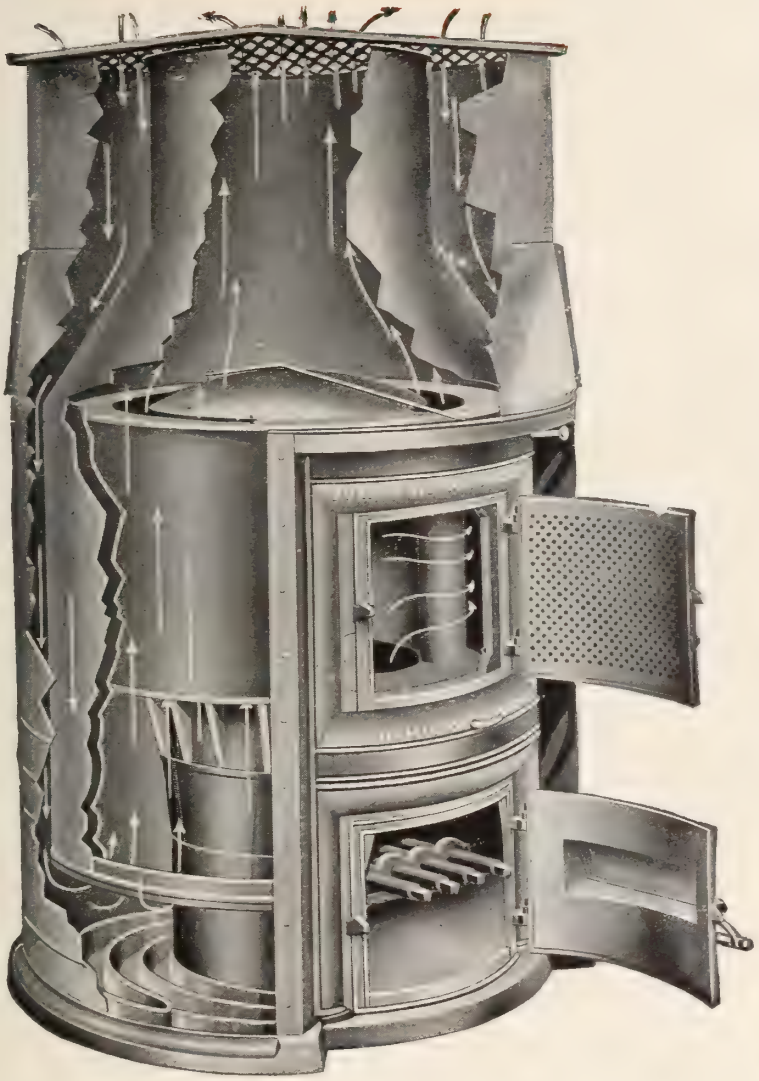
"Just compare ours with any other make. You'll be convinced"

How Much Coal Will It Burn!

Everybody Wants To Know—



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The question of fuel—to-day more than ever—is uppermost in the mind of the man who buys a furnace.

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No furnace could be better designed to receive cool, returning air; to so promptly heat it and send it forth again, bringing grateful, genial warmth to every corner of the house.

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Let us tell you about our Agency plan.

The "Jewel" Burns SOFT COAL

This is an important thing to know and consider at this particular time. It will help to close sales.

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Heater is designed for ease of installation and way you have often thought the ideal tank built.

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the RUUD AUTOMATIC WATER HEATER, ywhere as standard. It finds ready consumer missionary work to do—no sales resistance to

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ORONTO

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SANITARY ENGINEER
PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907 PUBLISHED TWICE MONTHLY

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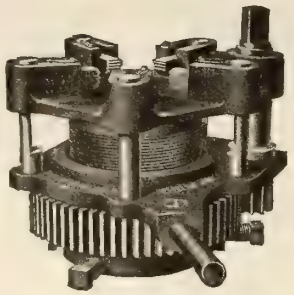
The most appropriate and satisfactory tool on the market.



All who are planning to invest in Pipe Threading Tools should first consider the ones bearing the trade name.

Toledo & Jardine

—they are just what the successful engineer will like. With them he can thread all pipe from ⅛ to 12 inch., inclusive.

Distinguished by simplicity-in-construction and strength-in-service.

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One Man Does the Work of Two

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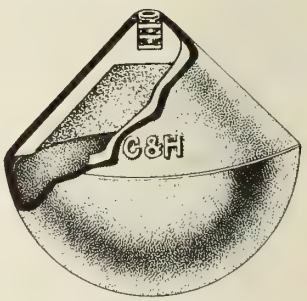

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Are hand made—of the very best quality rubber. The tops are reinforced with a special vulcanized rubber—hard but not brittle, while the bottoms are soft and pliable which ensures perfect seating.

Every C. & H. Bulb bears our trade mark, the mark that is fast becoming known from coast to coast in Canada as representing the best plumbing and heating specialties obtainable.

There is a C. & H. salesman for your territory. If he hasn't called, write us and we'll see that you are served.

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Plumber and Steamfitter of Canada

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Plumbing Goods on Instalment Plan

Much Discussed Question Being Solved in Novel Fashion by British Columbia Plumber—Tenders on Job, Then Secures Information on Customer's Ability to Pay, and Protects Materials From Seizure—Discounts Notes at Bank

THE SALE of plumbing and heating goods on the instalment plan has long been discussed at trade gatherings, but no definite plan has been decided on for protecting the plumber who follows this policy. The matter has been taken up with guarantee companies who handle instalment payments on automobiles and other such articles but no progress has been made in this direction.

Installations of plumbing and heating equipment run into what is a considerable lump of money to many people, if paid for at one time. Yet the fact is that it is mostly that class who feel unable to meet such expenditures who need sanitary and heating equipment the most. Why then should not some plan be evolved for adequately coping with this situation, thereby extending the use of much needed equipment to many people and bringing much business to the plumber?

Read how one Western plumber is handling the situation and then send in your opinion of this plan and any suggestions you might make for improvements to The Editor, Sanitary Engineer, 143 University Ave., Toronto.

Taking steps to develop the sale of plumbing fixtures on the instalment payment basis, W. W. Borton, sanitary engineer of West Summerland, B.C., recently advertised as follows in his local newspaper:

BUY BATHS AS WE DO PIANOS

A new era in plumbing merchandising has been reached and we marvel it didn't get here before.

The idea is to buy a bathroom for our home as we do a piano, equalizing the payments over a reasonable period of time.

Installing plumbing and equiping a bathroom are improvements we all plan for older homes, but incurring an expense we sometimes think we cannot afford.

But this new plan of partial payments makes immediate work possible. Drop in and see us. We are in position to start work at once.

THIS OFFER IS GOOD FOR A SHORT TIME ONLY

Discussing the subject with Sanitary Engineer Mr. Borton states that while it is a little early yet to outline definitely the success of the plan but from the many enquiries he has received and activity in an otherwise dull season he has confidence that the plan is working out all right. He takes the stand that it is not so much a question of lowering the initial cost to stimulate turnover as it is to put the terms within the reach of those who are made aware of the advantage accruing from modern sanitary appliances but who cannot afford to pay for them at once. He figures that his plan is doing the community a service as well as bringing him business.

"We all know that sanitation is the most important thing in a house and my contention therefore is "why should the public be able to buy cars, furniture, etc., on easy terms and not our line of materials, which from a health standpoint have made the world a fit place to live in?"

Going over his system Mr. Borton showed a sheet with questions for the customer to fill in. The answers give him a fair idea whether the party is capable of meeting payments. If he proves satisfactory the firm tenders on the job in the usual way. On acceptance the customer signs an agreement which protects the plumber in every way and leaves all material in his hands until entirely paid for as per the terms of the agreement.

To protect the plumber in connection with payments the customer signs notes to the amount of each monthly payment. An arrangement is made with the bank to discount these notes which means a cash transaction for the contract. As to the first cash payment on completion of work, the plumber arranges for the amount to cover at least one quarter to one third of the total price of the contract.

When once a thoroughly efficient plan for the sale of plumbing and heating installations on an instalment basis has been worked out the sales promotion plans can then be worked out on a different basis, making a point of the comfort and convenience available at small initial cost. One thing is sure, the satisfaction which comes from the use of such fixtures will encourage the customer to make his subsequent payments.

At this time of year the farmer is a splendid prospect for business and he is particularly approachable concerning a proposition to instal running water, sewage disposal system or heating system on his premises, where he does not have to shoulder the whole cost at once. He will be quick to realize the advantage and the incentive to greater production which such facilities produce.

Another feature of the instalment payment business either in town, city or farm is that a number of those who will be customers under such a plan would never become buyers if they had to pay for the whole installation at once. Many people never save any money unless they are more or less compelled to do so as would be the case in meeting the notes used under this system. Therefore if means are taken to discriminate closely and to sell only to those who will pay their bills, this plan should result in greatly increasing the consumption of plumbing and heating equipment.

Big Field for Sanitary Inspectors

Many Opportunities for Greater Service Emphasized at Annual Convention of Sanitary Inspectors' Association of Canada—E. W. J. Hague, Elected President—1923 Convention for Calgary

STANDARDIZATION of requirements and qualifications of sanitary inspectors, and the need for Government assistance, were factors urged at the tenth annual convention of the Sanitary Inspectors Association of Canada, held at Winnipeg last week. There was a good attendance of delegates from outside points, and Mayor Fowler of Winnipeg cordially welcomed the gathering at the opening session.

Honorary Life Memberships

E. W. J. Hague, assistant chief health inspector, Winnipeg, and for many years one of the most efficient health enthusiasts in Manitoba, was elected president of the association for the ensuing year, and Alex. Officer, tenement inspector, Winnipeg, was re-elected secretary-treasurer of the association for the tenth time.

Honorary life memberships were bestowed upon Dr. R. W. Bell, Toronto, and R. H. Murray, director of the division of sanitation of Saskatchewan, both of whom addressed the convention.

G. O. S. Laflamme, chief sanitary inspector, Ottawa, reviewed the progress of the association since the time he joined it four years ago. Much goodwill between the various provinces had been shown. He looked forward to legislation which would strengthen their association. After three years' hard work he had succeeded in getting the Ontario minister of health, Hon. Mr. Rollo, to appoint two doctors to work on behalf of the association.

E. W. J. HAGUE
Elected president at the Winnipeg convention of the Sanitary Inspectors Association of Canada. Mr. Hague is assistant chief health inspector for the City of Winnipeg.

OFFICERS ELECTED

The election of officers for 1922-1923 resulted as follows:—
E. W. J. Hague, Winnipeg, president
Alexander Officer, Winnipeg, secretary Treasurer.
Branch Presidents:—
Quebec—Dr. J. Beland, City of Quebec.
Ontario—Alexander White, North Bay.
Manitoba—J. McHardy, Winnipeg.
Saskatchewan—Albert Wright, Prince Albert.
Alberta—S. E. Whiteside, Medicine Hat.
British Columbia—H. S. Sturgess, Vancouver.
Executive Council:—
J. Arkle—St. James, Winnipeg.
J. R. Richardson—Transcona.
D. Little—Winnipeg.
A. Aitken—Winnipeg.

Wants Inspectors Educated

Mr. Laflamme advocated the setting aside annually of a certain sum to help educate the sanitary inspector for greater service.

"I do not see," he said, "why we should not be on the same footing as other educational establishments in this country, which receive grants from the provincial governments."

Urges Early Action

E. C. Brown, past president of the association, urged the convention to take action early in order that application for a grant might be made before the governments dealt with their estimates for the year.

He was of the opinion the scope of the association should be enlarged to include all workers who looked after the health of the community, recommending the convention to consider an amendment to the constitution including public health nurses, meat inspectors, cattle inspectors, and all persons safeguarding the health of the city or community in the membership of the association.

J. Richardson, provincial sanitary inspector for Ontario, gave an able paper on the duties and requirements of a sanitary inspector. He claimed the successful sanitary inspector first must have a thorough grasp of public health problems and strive to gain co-operation of the public in keeping premises clean for health's sake rather than because the law requires it.

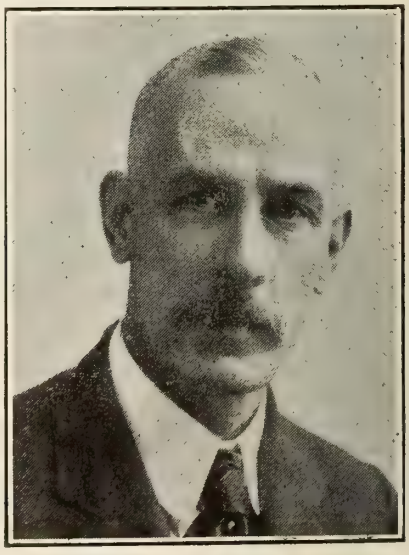
Mr. Richardson emphasized the need of government assistance for education of the lay inspectorate, declaring the sanitary inspector had not received due consideration.

"It is rather strange that our universities, which are supported by public taxation, should have arranged courses of instruction for public health nurses and so far have failed to take into consideration our own profession. We must have representation at the annual public health congress, where the view of our inspectorate should be made known. Our country would benefit tremendously from the effects of a trained body of inspectors and if Canada could issue her own degree of efficiency from her own colleges, the incentive to study would be great."

Alex. White, of North Bay, provincial health inspector of Ontario, dealt with the work of the inspectors in his province, particularly in regard to the lumber camps. The new government regulations governing camps had been the means of greatly improving conditions. Touching upon the construction of the buildings, he referred to the fact that roof vents were now required, as well as fresh air inlets, and other means were taken for the preservation of the health of the men.

Water Supply Vital

R. H. Murray, Regina, gave the delegates an interesting account of what had been accomplished in the neighboring province. The question of a water supply both for city and country was a vital one, Mr. Murray said.



ALEXANDER OFFICER
Re-elected treasurer of the Sanitary Inspectors Association of Canada. Mr. Officer has held this office since the formation of the organization in 1913.

Great care must be taken, Mr. Murray stated, in taking samples of water, and the old idea that anybody could do it was most erroneous. Only trained people should be permitted to take samples for the purpose of analysis. It frequently happened that the sample and not the supply was contaminated.

Calgary was selected as the convention city for 1923, the choice being almost unanimous, although invitations were also received from Brantford, Ont. Regina, Sask., and Vancouver, B. C.

A. Officer, secretary of the association, and tenement and supervising inspector of the city of Winnipeg, spoke of the work accomplished by the local and provincial branches in discussing problems and educating the members for better public service.

D. A. J. Douglas, Winnipeg medical health officer, expressed his complete sympathy for the aims and objects of the association. He was its first honorary member.

Reports were also made by provincial vice-presidents on the progress of work in the different provinces.

Purer Foods

E. L. C. Foster, of the Federal department of health, Winnipeg, reviewed the history of food adulteration and mentioned that the first general act on the subject was passed in England in 1860. In 1875 came the first Canadian federal statute taking cognizance of adulteration of food and under it public analysts were appointed.

The delegates attending included: A. J. Bolus, Fort William; D. S. McKee, Sudbury, Ont.; G. O. S. Laflamme, Ottawa; J. H. Pearson, Winnipeg; Benj. C. Brough, Winnipeg; R. W. Quillan, Winnipeg; C. W. Chisholm, Winnipeg; Alex. Mitchell, Regina; E. W. J. Hague, Winnipeg, J. McHardy, Winnipeg; Alex. Barclay, Winnipeg; J. Miller, Winnipeg; Dr. A. J. Douglas, Winnipeg; Thomas Watson, Regina; James Arkie. St. James; E. C. Brown, Winnipeg; S. J. Schuring, Winnipeg; A. G. Warr, Brandon; T. Webb, Moose Jaw; Alex. Officer, Winnipeg; G. Webb, Moose Jaw; John Richardson, North Bay, Ont.; Dr. R. W. Bell, Toronto; Alex. R. White, North Bay; H. G. Triggs, Winnipeg; A. Aitken, Winnipeg; H. H. Marshall, Winnipeg; Max Mains, Winnipeg, J. R. Richardson, Transcona; W. C. Miller, Ontario; and William Glover, Brantford, Ont.

Tenders are being called for by the Township of Sandwich South, Ont., for the construction of the Washbrooke drain. Tenders should be addressed to John McAuliffe, township clerk, Maidstone, Ont.

Hamilton.—Two city firms have failed to come to terms with the plumbers' union. Noman Clark, head of the Adam Clark Company, said that the firm would stand pat and that no inconvenience had been felt.

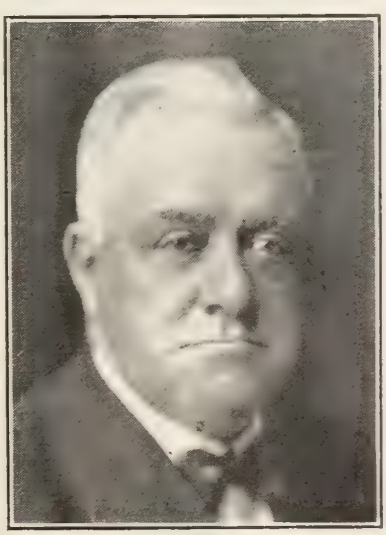
Favor Substituting Oil for Heating Schools

OTTAWA.—Though no recommendation was made by the building committee of the Public School Board, a special meeting of the committee has been called for the purpose of discussing the advisability of substituting oil for coal, for heating the various public school buildings.

The general impression prevails among the members of the board that oil could be used much more cheaply than coal, and that its use would be advantageous, not only now when there is a shortage of coal, but at all times. Should the investigations of the committee be borne out, it is not unlikely that oil might be substituted permanently for coal in all of the school buildings.

The saving, it was estimated, would amount every year to from 10 to 15 per cent., while the cost of installing the oil burning devices would be approximately $15,000. The committee report having already interviewed several local merchants who were prepared at short notice to install the necessary mechanism. It would be necessary also to install storage tanks. The oil that would be suppied would be crude oil, and the dealers questioned, stated that they could supply the necessary amount without any difficulty.

It was pointed out that it would be necessary to take almost immediate action, since the oil burners would have to be installed before the cold weather sets in, while on the other hand the supply of coal at present on hand for any of the schools was so small as to be practically negligible. There seemed no likelihood that more would be obtained immediately.



G. O. S. LAFLAMME

Past-president, who reviewed the progress of the Sanitary Inspectors Association during the past four years at the annual convention held in Winnipeg.

Bargain Day

During a divorce trial a lawyer asked the fair plaintiff: "If you did not love him, why did you marry him?"

She answered: "You see, when he proposed he looked so cheap I could not refuse the bargain."

* * *

It is better to hustle for new business than to get wealth by cutting down expenses.

* * *

The advertisement that makes you want to buy the goods doesn't contain many words that you have to look up in the dictionary.

* * *

Mrs. Recently Wed: "Did I appear nervous at all during my marriage ceremony, Clara?"

Envious Friend: "A little at first, dear. But not after George had said 'I will.'"

* * *

"Jim Bilkins is dead."

"How come?"

"He struck his head into the Red Dog saloon and hollered 'Fire.'"

"Well?"

"They did."

* * *

Cause For Thanks

"What do you think of the two candidates?" asked one elector of another.

"What do I think of them?" was the reply, "Well, when I look at them I'm thankful only one of them can get in."

* * *

When a Dog's a Dawg

Small Girl, at charity fair—"Ain't that a nice little dawg?"

Duchess of Dingdong, owner of the animal—"It's a dog, child; not a 'dawg.'"

Small Girl—"It's awfu' like a dawg, ain't it?"

CONTRACT AWARDED

Winnipeg.—Construction of the new home for the Breen Motor Company, on Main street south of the Board of Trade building, has been commenced, the contract having been awarded to H. Sigurdson. The building is to be completed and ready for occupancy by Jan. 1, 1913. Pratt & Ross are the architects. The contract price is $120,000, but plumbing and heating will be installed by the owners at an estimated cost of more than $30,000 which with the land brings the cost of the building to an excess of $200,000.

Economics—The Key Stone of Success

Definition of Economics Under Modern Conditions Means "Getting Your Money's Worth"—Applying This Term Economics to Business

Written and Illustrated for Sanitary Engineer by MAJOR L. L. ANTHES, President Anthes Foundry Company, Toronto

"ECONOMICS" is "The Cornerstone of Success."

According to the dictionary, Economics means roughly, "The production, preservation, and distribution of wealth."

But I desire to offer a very simple definition of the word, which should be understod by all. It is, "Getting your money's worth."

Of course the highbrows would say, "rot," "trash," and other unkind things about such an interpretation but then we are not particularly concerned about what the "highbrows" think or say, so let them have their grouch.

All successful politicians (who have had the advantage of a college education) took a course in what is known as "political economy"—that is, "How to get your money's worth out of politics."

I could name a number of our most outstanding politicians who undoubtedly learned their "lesson" well while at school.

Then we have domestic (comedy, I came pretty near saying) economy. This means "getting your money's worth out of married life." Hence the word "Matri-money," which being translated means "to have and to hold." (No matter how easily it comes, it is the devil's own job to hold it.)

Now having followed me so far,—(if you have)—you will understand that the word "Economy" is directly opposed to the word "Waste." (Not waist, because people no longer carry their money in belts.)

Where there is "waste" there is no "economy," and where there is "economy," there is no "waste." They cannot live together! Do you get me?

"Neglect" is one of the greatest enemies of "economy." Neglect your health, and you "cash in," (but on the wrong side of the ledger).

Neglect your opportunities and you might as well die at once, for "you are not getting your money's worth" out of life. Therefore, by all counts you are a "dead one."

Economics and the Sanitary Engineer

Well, what has this to do with the sanitary and heating engineer? you ask.

"Thank you," I will answer your question by continuing to moralize.

Two of the greatest boons to mankind are—unlimited air and water. And without air and water where would the plumber get off at? One he has to drink (for it is still on the free list): and the other he weathers. If he is in the heating business, he will have to know how to "shoot hot air" in more ways than one. And now just between you and me, are we (and by we I mean all mankind) not great "wasters" particularly of water, one of our two great blessings? In the big cities we install huge pumping plants which fill reservoirs which have millions of gallons capacity. We turn on a tap and let the water run—run into the sewer where it simply runs to "waste."

Very often we cannot turn off a tap because the washer is "gone" or something is out of gear—we simply "neglect," to have it repaired, then the same old trouble, "waste." So it is with closets, and plumbing generally, the public "neglects" to have repairs made, and a continuous "waste" of good water goes on. We pay for it—you bet we do—but knowing nothing about "Economics," we bury our heads in the sand like the ostrich and think we are getting away with something because the inspector is not on the job.

The Burden of Ignorance

Within his limited range of observation the farmer is considered a rigid "economist." As a rule he wants to get his money's worth. But with all his caution, he is just as liable to suffer from "neglect and waste," the twin enemies of "economy," as the next man.

If statistics are to be relied upon, the farmer is a prime offender when it comes to the matter of neglecting health. "Ignorance," the hand-maiden of "neglect" and "waste," is chiefly to blame.

"Lack of sanitation and exposure," have always been the enemy of civilization, and as man is no longer a rover like the beasts, but has come to live in a fixed abode, he is not fortified to resist exposure nor can he get away from unsanitary conditions if he makes no effort to overcome them.

True he builds him a house and for the most part is sheltered from the wrath of inclement weather. But there are times when he and his family have to brave the elements and suffer the combined evils of "exposure and unsanitary conditions."

"Is there no remedy for this?"

Of course there is.

The farmer can overthrow the dragons "Waste and Neglect" and prove himself a true "economist" at the same time.

"How?"

By having in his home a complete sanitary installation, and at the same time receiving an annual return on his investment.

City Dwellers' Dividends

This is where he has it on the city dweller. The latter pays for his installation—pays in taxes for the sewer on his street as a local improvement—and then pays in his eyarly assessment for the maintenance of the service. He pays for his water service and once the "plug" is lifted, his water is "gone!" But he goes on paying.

The sewage and waste is carried from the city hence in big tank sewers, and eventually finds its way to the lake or river—usually the source of his supply of drinking water.

"Is this not dangerous to health?"

Of course it is. That is why our Municipal Health Department dumps tons of chloride into the lake every year to kill typhoid and other injurious germs that might find their way into the water mains.

So the man in the city takes into his system chlorinated water instead of living "typhoid bugs." That is the only return he gets for his money.

"How about the farmer? Have we anything better to offer him?"

Of course we have, and here is your little story on "Economics."

By a judicious outlay of less than a

(Continued on page 26)

Specialized Newspapers and C. N. E.

Address Delivered at Directors' Luncheon of Canadian National Exhibition on Press Day, August 31st, by Horace T. Hunter, Vice-President, Canadian National Newspapers and Periodicals Association

MR. PRESIDENT, directors and fellow publishers: You have heard from the Daily Newspaper Association, from the Weekly Newspaper Association, and I have been asked to speak for the Canadian National Newspapers and Periodicals Association, which might be termed the residuary legatee of the newspaper publishing business. It is not, however, an uncommon thing for the residuary legatee to get a very large part of an estate.

Over Three Million Subscribers

The extent and influence of publications represented by our Association are indicated by the following approximate statement of circulation:

Farm Papers	1,030,897
Magazines	1,065,307
Religious and Educational Papers	725,000
Business and Technical Newspapers	399,099
Total	3,220,303

On behalf of the Canadian National Newspapers and Periodicals Association, representing over three million subscribers, I wish to congratulate you on the success of this year's Exhibition. We know that it is not like Topsy, "just growed." It has been brought to the high state of perfection it occupies to-day by the shrewd and far-seeing policies of the directors and executive officers, and by their untiring energy in carrying out these policies.

You referred, Mr. President, to the old custom of subscribers to weekly newspapers sending in cord-wood to pay for subscriptions and suggested that some of this wood be sent to relieve fuel shortage in Toronto. Might I suggest that if there is still a shortage some of the "hot air" in the daily newspapers could be used to advantage. (Loud laughter).

Optimistic Outlook

It is easy to be optimistic about the Fair to-day; but there are many of us here to-day who can remember the difficulties that had to be overcome and the optimists of twenty-five years ago would probably be looked upon as the pessimists to-day. This situation reminds me of an old settler who was told that they were going to build a railroad right through the village in which he had lived for seventy years. He shook his head, however, and stated: "They'll never run it." The right of way was secured, the tracks were laid and finally a party came to him and told him to come down to the station, that the new train was there and was going to start off in an hour's time. The old settler went down, looked over the equipment and finally, as the train glided gracefully away, remarked: "They'll never stop it." This, Mr. President, must be the feeling of everyone to-day. Nothing will stop your progress.

Similar Aims and Interests

There are many points of similarity between the work of our Association and the Canadian National Exhibition. These form a strong bond of interest and sympathy between us.

Both are *national*. Our subscribers in the various provinces of the Dominion are the men and women you are most anxious to bring to the Exhibition. The fact that they are readers and subscribers of our papers is the proof that they are people of intelligence, students of business, interested in new methods and in learning of new goods. They are the people who will travel a hundred or a thousand miles when the opportunity offers to see an exhibition such as you have developed, and I congratulate you that these people are coming in increasing numbers each year.

The international aspect is also a common bond. You have an increasing number of visitors from foreign countries, thus creating a feeling of good-will with these countries, and helping our manufacturers to establish connections abroad. The same reason that brings business men from United States, Great Britain, West Indies, etc., also causes them to subscribe for our publications. These foreign subscriptions have become such a big factor with some of our publications that they are now issuing Export editions.

Educational Aspect Most Important

Then we are on common ground in educational work. I believe this Exhibition was started primarily for educational purposes and its great success is due to the fact that you have never allowed the amusement side to dominate. I believe the educational features should be given wider publicity. The individual exhibitors do a good deal in this connection but there is much to be done collectively. A few people would come to see a few exhibits of motor cars, but thousands will come when they know there will be seventy exhibitors representing probably seventy per cent. of the manufacturers who are seeking Canadian business. In our Association there is a publication for practically every line of business. These publications have told, year by year, the outstanding events of the Exhibition that would be of interest to their readers, and I think we can claim that this has been a factor in increasing interest and attendance of a very desirable class of people.

Influence of Business Press

I would like to quote briefly from an address delivered within the past year by His Honor, the Lieutenant-Governor of Ontario, who officially opened the Exhibition this year. Addressing the Canadian National Newspapers and Periodicals Association, His Honor said:

"I believe that the influence of the business press will be one of the most important factors in re-establishing business conditions in Canada on a safe and sane basis. I make a distinction between the business newspapers and the daily press because I believe that your papers—the business newspapers of Canada—exert a greater influence than the daily press because of the greater confidence your readers have in them. People read the daily newspapers to keep abreast of the general news of the day. They are interested in what is happening around them and they read to satisfy their desire for excitement or interest or entertainment. What they read in the daily newspapers to-day is forgotten to-morrow.

"But this is not the case with the business newspaper. Business men need the service of these papers in the conduct of their every-day business life. I have noted that they usually have a business paper or two in their pocket when they go home Saturday night. I do not say that they read them on Sunday, that I do not know, but I do know that they study them carefully and a great number of your readers will come to their business on Monday morning with some clippings from your paper in their pockets. They will say to their associates:

(Continued on page 26)

Oil as Fuel for Use in the Household

Plumbers Asked to Answer Questionnaire Regarding Fuel Oil as an Economical Substitute for Coal—Probable Shortage of Coal Has Stimulated Sales of Oil-Burning Attachments—Although Installed by Manufacturers, Plumbing Trade is Given Percentage on Sales if Purchaser is Directed by Them—Little or no Change Necessary in Hot Water or Steam Boiler

WITH earlier fall now at hand the plumber and steamfitter is called upon to oversee and repair, if necessary, the heating systems in public institutions, factories, offices, stores and, last but not least, the private dwellings of his customers. In September it is noted that his trade commences to swing more from the outdoor work he has been undertaking during the summer months to work inside in preparation for the coming winter. This season has been no exception, for plumbers report that they are already in the midst of this period, with their offices busy arranging with customers the date and time which they may expect a visit from a man from the plumbing shop.

Montreal plumbers state that apart from the usual run of inquiries regarding hot-water, steam or hot air systems at this season they are being asked by a good many of their customers for information with regard to installing an oil burning attachment to their boilers, thus allowing them to use oil for fuel rather than coal which they have always been accustomed to. The much reported probable shortage of coal has led many to study the question of changing their fuel both from the angle of eliminating any danger in securing coal supply and an economical standpoint. Questions which local plumbers have been asked to answer are along the following lines: Is an oil burning attachment practicable in a smaller individual home? Is burning oil more economical than coal, or even wood? Would you recommend it? What would the attachment cost?

From a Plumber's Standpoint

Naturally plumbers wish to answer these and other questions in a conscientious manner, and as one plumber stated to Sanitary Engineer, "we must give our own personal views, or as we would consider the question of installing a system of this nature in our own home. Up to the present few installations have been made by the steamfitter because the work is generally done by the maker himself. However, we must not let this prejudice us in any way. We are dealing with our own good customers and our advice will either help us or harm us in future."

Oil as fuel is reported by manufacturers of these systems as being more extensively used in certain centres than others. It has also met with greater favor among owners of the larger type of buildings than of the smaller dwelling house class. One of the chief reasons for this is doubtless because of the cost of installation, especially when it is an additional cash lay-out to the already placed system. If, however, this difficulty can be overcome, and many more people are persuaded to burn oil, a good deal of the credit can be placed to the plumber and steamfitter for it is of him that advice is sought.

Plumbers Get Percentage

A local manufacturer stated that much headway in the sale of oil burning attachments was being made this year, and they were very busy at the present time making installations. It was admitted that the present coal situation, with prospects of a shortage during the coming winter, was a factor assisting them, although apart from this oil as a fuel was gaining more favour each year because of its own merits. They found that many plumbing establishments in the city were referring prospective purchasers to them, and in turn they were only too willing to offer a remuneration for the co-operation. It was their desire to instal the systems because they were sold under a guarantee and to ensure both the purchaser and themselves they considered it necessary to have their own thoroughly experienced mechanics. However, if a plumber directed a prospect to them and drew this to their attention they forwarded on payment a percentage for commission. This method was thought to be the most satisfactory for all concerned. The plumbing trade suffered in no way through competition, as they had already installed the heating system which might be either a steam or hot water boiler. It was merely adding to their work, and they would still be called upon by the house owners to make repairs to the system other than the added appliance.

No Changes Necessary in Hot-Water Boiler

"We have had numerous enquiries recently from house owners who have our make of boiler and radiators in their homes, but because we do not make an oil burning attachment we naturally refer them to the proper source for information as to what can be accomplished by burning oil. There are practically no changes necessary to be made in the boiler, and the conversion really does not effect us," said a local manufacturer of hot water and steam boilers and radiation.

"We are given to understand that improvements have recently been made, and to-day the unsavory odor of oil and the noise which could formerly be heard are practically eliminated. With these improvements we feel that we can recommend it to a prospective buyer if he does not consider the cost of installation too high, and he is convinced that it will be a paying proposition from the standpoint of fuel cost."

EXTEND WATER MAINS

Work is being rushed with the extension of the water mains throughout the Long Branch district for the New Toronto system. A number of the street mains have already been laid.

GRIMSBY TO SPEND $20,000 ON MAINS

Grimsby.—At an estimated expenditure of $20,000, the water commissioners will lay a new four-inch main on the Nelles boulevard, a four-inch main on Kerman avenue, a six-inch main on Livingston avenue, from Main street to St. Andrew's avenue, and a ten-inch main Elizabeth street to Main street. The replacing of the old four-inch main by the six inch on Livingston avenue is made necessary by the volume of water needed by the Cold Storage company. The reshifting of a number of the smaller mains to larger ones is made necessary by the ever-increasing number of water-users, there being at the present time over 600. The work on the alterations will take place this fall and winter.

TO EXPERIMENT WITH FUEL OIL FOR HEATING

Heating by oil fuel will be tried as an experiment this winter in four Catholic schools in Montreal, in view of the coal shortage, according to officials of the Catholic School Commission. Should the experiment prove successful it may be extended to other schools under the commission.

Inquiries at the head office of the educational authorities of Montreal and district showed that the various School Boards are keeping a sharp eye on the coal situation and are taking every precaution to ensure that the schools will be properly heated this winter and that the children will not suffer.

Most of them have sufficient supplies to last for several weeks and none express any anxiety that they will not be taken care of for the remainder of the season. Contracts are placed with responsible firms and school authorities feel that they will be one of the first charges.

"Them Days is Gone Forever"

We Laugh at So-Called Inefficiency of Plumbing Business in the Old Days, But in Some Respects We are as Inefficient and Backward To-day as Then—Little Personal Liberty in Being Own Boss

Written for Sanitary Engineer by KENNETH B. ALLISON

THERE was a time when the boss never let the journeyman plumber out of the shop unless he was sure he had a piece of half inch lead water pipe in the bag. Those were the days when a kit of tools, a furnace and pot, the aforementioned lead pipe, and a small assortment of regular everyday washers would get the plumber by his day's work without running back to shop, in fact the shop often did not see the man for three or four jobs at a time. In the words of the cartoonist "THEM DAYS IS GONE FOREVER."

There was a time, too, when the common or garden variety of range boiler cost four dollars or thereabouts and workmen got from thirty-five to forty cents an hour while the boss got ten dollars for changing the range boiler but "THEM DAYS IS GONE FOREVER."

Then again there was a time when a workman had to have a wonderful alibi for taking four hours to change said boiler —what with bendable lead pipe and single connection that is, unless he had said alibi he got a tin can tied to him good, fast and proper but likewise "THEM DAYS IS GONE FOREVER."

There was competition in those days and plenty of it but somehow it doesn't seem quite the same to-day. Fifteen to twenty years ago—not long is it?—a jobbing boss plumber wasn't busy unless he had unfilled orders back as far as three weeks.

Efficiency

To-day the "As near to you as your 'phone" truck service has developed from the innovation it created a few years ago to be a sort of reference as to one's ability or standing something like Dun's or Bradstreet's, in fact those folks without this kind of service are kind of back numbers. And the service they give for the price they charge bespeaks efficiency in capital letters. They crowd so fast that the average operator is real high class when he can hold orders for a twenty-four hour period.

I remember something about a plan someone tried a good many years ago to corral business. They advertised the repairing of taps at twenty-five cents for the first one and ten cents for each subsequent one. The means of combating this plan were direct to say the least because someone from somewhere was always sending in an order which called for a long trip and only proved fictitious when answered. The plan was judged as unprofessional and let us say the means of disposing of it were somewhat similar.

How things have moved since then. To-day if competition is too keen or gets, shall we say, unprofessional the new method to combat it is to meet it or get below it. In fact some folks become impatient because competition is not brisk enough and go forth to start it. If a journeyman is paid 90 cents per hour and sound business practice has established the price to the public, on at least small jobs, at one dollar and forty cents per hour then whatinsamhill is the idea of putting the reverse English on it and auctioning it down as low as one dollar.

Where is the Personal Liberty

If a plumber can get ninety cents an hour working for a boss where does the personal liberty come in in becoming his own boss and taking contracts at such figures that he only nets forty-five cents an hour for his work. Make the rate what you will, if the same disparaging difference exists then as one of the craft has often put it in telling a Cockney story "What the 'ell, Bill, what the 'ell."

About now I can hear someone saying that the demands made upon plumbing material to-day are much greater than they were for which let us each offer up a pæan of praise to the fastidiousness of the public in increasing the volume of business of the industry even perhaps against the will, or at least the indifference, of said industry.

Again I hear someone rise to remark that nowadays so much ingenuity has been given over to helping the plumber out of his difficulties that he, the plumber, can obtain counterparts or repair parts for every size of everything that is made in the line. That's it, the poor plumber starts the morning with sunshine in his heart and pulsating love for all mankind and the world at large but by nine o'clock he has met a ballcock made in Castingville, New Europe (1 pass for its location). To describe its looks would be something similar to describing a mongrel in the dog world—it stands like a Skye terrier but it has a head like a Boston bull. To describe its action would only cause confusion because you cannot tell whether it is trying to sing or warble and you have a kind of half-hearted belief that it would get tight once every so often if it could only be sure of having a valet to hold it up.

Instead of having a little system to the thing in having threads of parts standardized, in eliminating unnecessary duplication of design, and likewise unnecessary substitution by a host of manufacturers we succeed in having the brains of the four corners of the earth dumped into each plumbing shop. It would take a five ton truck to carry the replacement parts necessary. There are somewhere between ten and twelve thousand articles connected with our business and every little while someone else decides to make one or more of them a new way.

Much Waste

Surely someone has stopped and thought of the waste this incurs. The public are paying and at the same time cursing the plumber for every minute of his time which is something like two to two and a half cents each minute. The plumber is using up time studying a new freak in the community and scratching his head wondering how it got so far from home. That he is not producing at the moment or that he is taking more time than he does on a more widely known and therefore standard article of the locality is not his fault. Meanwhile the public pays with cash in full and murder in their hearts directed solely at the plumber, or else they reduce on the cash remittance and increase on the murder application, but always at the plumber.

Plumber and robber have always been co-related words in the minds of the public but I believe there is a prime difference between the action of the plumber of to-day and yesterday. Before he collected some recompense for the abuse he took and with that extra recompense gained strength to fight his battles. To-day we start with the same abuse, get so little recompense for our energy and that abuse that before the day is far gone we are too weak to give battle against that abuse and so the abuse grows while we weaken.

Perhaps we do not talk enough —I mean the talk that produces benefits. Selling talks not price cutting arguments. Anyone can say what they like about us and we answer not because we are so busy and so worried over our small profit jobs and we have to conserve our strength to work and worry over the same kind of jobs tomorrow because our reserve account will not stand a day off or even an hour off to think, TO PLAN, AND TO EDUCATE OURSELVES TO SELL AND FIGHT CLEAN.

Success

By K. B. ALLISON

YOU and I want SUCCESS. Yes, we want it, but are we willing to pay the price? Do we know how to go about getting it? Is our desire for success strong enough to make us put forward effort to attain it or do we just sit back and think of how we would do it if we were boss, or else complain of how elusive success is to catch and having been caught how hard it is to hold because other folks are trying to take it away from us?

Success like happiness cannot be bought by paying out so much in dollars and cents.

As in happiness, so in success, you are your own boss. It is for you to say what effort you will put in now so that you may better judge your success of the future.

Can you stand discouragement? Yes, lots of it.

Have you the persistence to try again even after failures?

Are you a leader or a leaner? Do you go out and blaze your own trail or do you let the other fellow do it?

Have you the strength of your own convictions and the nerve to prove those convictions or do you allow others to sway your attentions?

Do you recognize the difference between determination to accomplish a careful plan and plain bull-headedness?

We all day dream, but do you always keep in mind that day dreaming is theory and that effort must be used to put theory into practice before the final result can be obtained?

Have you patience to plan, to analyze, to tear down and build up, to be accurate and overlook no point in either the plan or the execution, or do you throw up the sponge half-way because of obstacles?

Are you willing to sacrifice, to cut out the luxuries of to-day so that you might the better enjoy the necessities of to-morrow, or have you no faith in your ability to prove the to-morrow?

Can you stand ridicule, skepticism and the like without quitting?

Can you start good, stick good and finish strong?

SUCCESS is hard to those who day dream only. It may also be hard to those who work for its attainment but the joy of its accomplishment soothes one after the hard knocks. Do YOU really want SUCCESS?

ECONOMICS—THE KEYSTONE OF SUCCESS

(Continued from page 22)

thousand dollars, (in some cases it will be a little more) a farmer can buy an automatic water system (which becomes his own property), that will give him an abundance of fresh water.

By the installation of a septic tank which is flushed periodically with a disposal field, he can have all the sanitary fixtures in his house that anyone could desire.

"What about the return on his investment."

Not a drop of water that the farmer uses need be wasted.

A "disposal field" is something more than a "disposal field." It is a thoroughly irrigated and highly fertilized revenue-producing piece of property. Nature sees to this. She is assisted by a hard-working couple who are not often heard of as they do not advertise, but who are busy all the time.

Anne E. Robic is an old lady who has an inside job, she looks after the "house;" which in this case is the "septic tank." Her specialty is "breaking up organic solids." She is one of Adam's earliest descendents and still she is with us. Indeed she is so old that the phrase "How old is Anne" has become a by-word.

It is interesting to watch her work.

She loves the dark and is so afraid of too much air getting into her "press" that she forms a scum over the surface of the contents in the tank. She becomes highly indignant and sulks if this scum is in any way disturbed. She revels in the luke warm water that comes from the house-drain, for it keeps her fingers from getting stiff.

In fact when a tank is built after the frost has come, the chilled sides of the tank make it difficult to get her "brew" started working. When these conditions arise, she is very thankful if somebody will throw a few yeast cakes into the tank. The fermentation started by the yeast soon brings the water up to the required temperature for successful operation.

And when the old lady has finished "brewing," her product is no more like "raw sewage," than "beer" is like "raw hops and sugar."

Fermentation has taken place, and the "fermented sewage" is drawn from the bottom of the septic tank with the "syphon or dosing" chamber, and is eventually flushed through the disposal field.

This is where her spouse, old man A. E. Robic, gets in his fine work. He has a working agreement with the Sun and the Air, who help him to turn the old lady's "brew" into life-giving elements.

If you put the field tile more than eighteen inches underground, old man A. E. Robic becomes discouraged, and he loses the co-operation of the sun and air, who are "surface" and not "pit" workers.

And oh! the returns a good disposal field gives!

It will turn a desert into a garden of Eden.

"Economics" should be an easy subject to preach. Just remember the meaning —"getting your money's worth."

Put it over!

SPECIALIZED NEWSPAPERS AND C. N. E.

(Continued from page 23)

"This is the situation, I can show it to you in this clipping." For that reason, gentlemen, I say that yours is the greater obligation, because you are leaders, because you are helping to build up the business fabric of the country."

We appreciate the honor the C. N. E. has conferred on the Press in singling out a day in their honor. In a larger sense, however, every day is "Press Day" for some of the publishers in our association. Our publications are of such a varied nature and cover such diversified fields that in nearly every case there are one or more publications devoted to the industry that gives the day its name.

Now, I believe the directors are interested not merely in bringing the numbers but in bringing the men and women with a stake in the country—the responsible people, the people of large buying power. To put it in newspap r language, you are interested in class in circulation rather than in the mass circulation.

In every one of the lines mentioned above, our publications reach a large percentage of the best men and women engaged in the business, and reach them with publications that they have come to regard as their business associates.

I believe the big development of the future for the Canadian National Exhibition is to develop the exhibits of the various industries as units.

I can assure you the publications in our association will be very glad to co-operate with you, not only in organizing exhibitors and inducing them to guarantee the cost of the building, but in making the buildings a success after they are erected by bringing to the Exhibition the class of people these exhibiitors want to reach. For, after all, the real success of an Exhibition does not consist in large buildings or elaborate exhibits but in the class of people who attend.

Demonstrating Plumbing Equipment

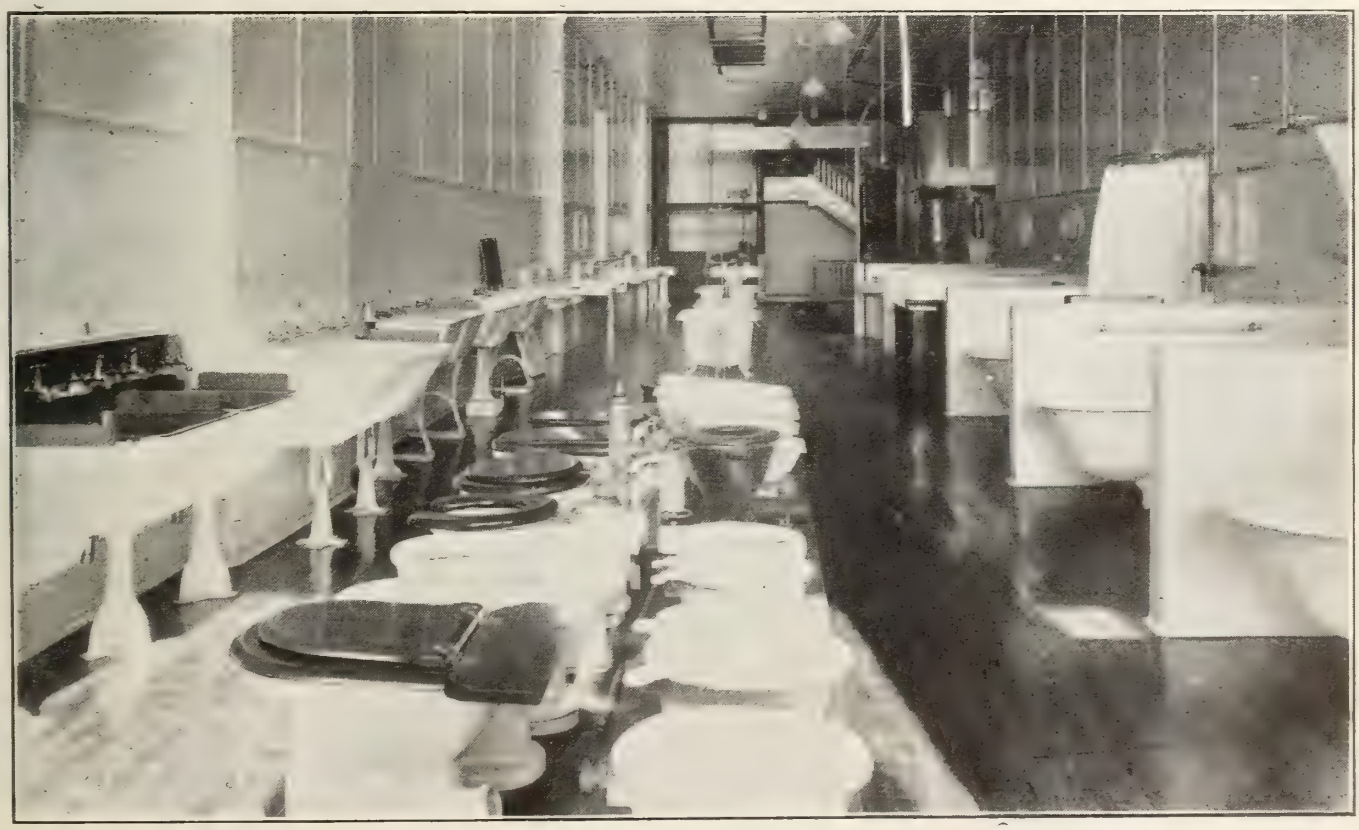
Average Prospect Has Little Idea of What Convenience Plumbing and Heating Equipment Can be in the Home—Demonstration in Prospect's Home Very Effective—Explanation Accompanies Each Display

DISCUSSING selling methods for stimulating the movement of plumbing and heating goods with an Ontario sanitary engineer, emphasis was placed on the value of demonstrations. It was stated that the average prospect has little idea that in demonstrating an instantaneous heater, for example, he has found that merely pointing out that the heater produces hot water as soon as the faucet is turned is not nearly as effective as allowing the customer to turn the faucet and discover the hot water. He has developed the demonstration possibilities of every line in his store to good advantage.

Not only are demonstrations made in the store. Some of the most effective demonstrations are those carried out in the prospect's home. He states that sales are nearly 100 per cent. where he is allowed to demonstrate in a prospect's home an article which is within the reach of their means and which can be used to good advantage. He is following out the plan whereby dealers in pianos, phonographs, washing machines, etc., have put business across. He finds that women in particular are much more interested when they see the article as it appears in use. Thus when showing lavatory equipment this plumber always shows the shelf, towel bar, mirror, etc., in position and the fixture backed against a wall representing that of the bathroom.

This plumber also has some helpful ideas in connection with displaying plumbing and heating goods in the shop windows and his success in this direction justifies a thorough outline of his plans. He points out that every display should be accompanied with some explanation answering the usual questions which crop up in the mind of the prospect, such for instance as, "What are the goods used for, what is the cost, what benefit would they be to me?" These questions can all be answered by neat window cards. He also finds it advisable to put price tickets on most installations, sometimes grouping a number of lines necessary to a complete bathroom, laundry or kitchen equipment and showing the total price. He finds that few people become really interested unless they know the price is within reason. Having had experience with both plans he knows that when people are left to judge the approximate price of plumbing and heating goods they generally guess too high and scare themselves away from making a purchase by their own misjudgment. He finds that if the prospect shows interest when knowing the price, he is not hard to sell whereas many prospects will take up much of the plumber's time talking about certain fixtures and then drop the subject immediately they find out the price.

In showing fixtures either individually or in groups, where a part payment plan applies, his experience is that it is better to show just the amount of the first payment with a sign reading "$....puts one of these in your home." With those devices which have a certain operating cost, he finds it advantageous to show the cost per hour or for any other time which might tend to discount the importance of such cost.



The type of demonstration which is effective in selling plumbing equipment is that illustrated herewith. Four foot panels separate each separate demonstration of bathroom equipment, taking up little extra room and yet giving a fair indication of how the complete set looks in use. Down the other side is seen an arrangement of laundry tubs, pedestal lavatories, kitchen sinks, etc. In the centre are closets, footbaths and some ordinary baths. In the complete sets are included baths, showers, foot baths, wash basins, mirrors, medicine cabinets, towel racks, etc. This display room sells a good share of plumbing equipment.

Conducts Heat Regulation Campaign

Fuel Shortage Adds Strength to Campaign in Interests of Heat Regulation Involving Sale of Regulators, Gas Appliances, Pipe Covering, Air Valves, etc.—T.E.B. Outlines a Plan for a Campaign at This Season

FROM the middle of September until the middle of October is an active time for automatic heat regulation. When campaigns were being planned earlier in the season it was not anticipated that we would have a coal strike on our hands at this time, but the fuel shortage which ensues, even if the strike is settled, makes it an admirable time to push the sale of heat regulation and other fuel saving equipment. It should be an active time for sales of heat regulators, gas appliances, pipe covering, air valves and other such equipment.

The National Trade Extension Bureau has made plans for such a campaign as dealt with in the following:

The first essential in any successful sales campaign is proper planning. Many campaigns are branded failures, primarily, because the party or firm who conducted the campaign entered into it without giving it, in advance, any thought whatever. Of course, sales can be made in that way, but not to the same extent as when proper planning has been done.

List of Prospects

Therefore, the first and most essential step for every dealer to make, as far in advance as possible, is that of planning every step of the Heat Regulation Campaign that he will conduct during that month. His first move should be that of compiling an accurate list of prospects. This can be accumulated from the telephone book, or by a house to house visit made by school-boys. The latter plan involves some expense of course, but good bright chaps can be secured at a very nominal salary. These boys can make a house to house canvass in order to ascertain the kind of heat in every business building or residence visited, who the owners are, whether there is any form of mechanical regulation, etc. Such information will make an excellent prospect list, and one that will be productive when properly worked.

The next step will be to compile a series of sales letters covering the heat regulator or other heating appliances that the dealer wishes to sell. At least three such letters should be sent out to every prospect, each letter differing in its appeal or selling points. Be exact in telling what you want.

During the week outlined for the grand finale of the campaign and, at least, the week preceding it, a liberal amount of money should be spent in newspaper advertising. During the final week of the campaign the dealer should employ some person to specially follow up all replies or live prospects. Even a house to house campaign would prove productive.

It is a very easy matter, at this season of the year, to employ women on a commission basis to solicit such business. These women should be equipped with a sample board containing the appliance or appliances that the drive is being centered upon. If possible this sample board should be so constructed so that the heat regulator can be operated by blowing the breath upon the thermostat, and then, by fanning it, cool it off so that drafts will open. The contact points of the thermostat should be set very close together, so that the slightest change in temperature would set the motor in operation. A demonstration of this character is very convincing.

Such solicitors should also be furnished with prices including installation. As an example, let us conclude that a heat regulator is listed at $65.00 and it will require an average cost of $5.00 to install. This makes a total of $70.00 which is the cash price for the regulator installed. If the buyer wishes to buy the heat regulator on time, then interest should be added to the $70.00 for a period of six months at the prevailing bank rate.

Selling On Instalment

Let us assume, in this instance, that interest rate is 8% per annum. For a six months period the interest would be figured at $2.80, no allowances being made for the cash payment or for the payments that do not run the full six months. It should be the plan to obtain a cash payment of at least 25% of the price of the regulator. In this instance, it would amount to $18.20, leaving $54.60 to be paid in six months, or a payment of $10.00 per month for the first five months, and $4.60 for the last month. Each sale should be contracted for on a specially prepared typewritten or printed contract form similar to the form shown herewith. On the reverse side the conditions as outlined in this article should be typed or printed.

When the contract is signed the customer should pay $18.20 in cash, and sign six Labor & Material Acceptances. These acceptances can be immediately discounted at the bank, or can be retained in the safe of the heating contractor. In this way you obtain all the money for the regulator in advance, at least such would be the case, if the acceptances are discounted at the bank.

It will be found that a commission of from $3.50 to $7 will be very attractive to many competent solicitors. An ad in the newspaper will bring you a sufficient number of inquiries from persons desiring such employment, from which you can make a selection.

Ask a Fair Price

Last, but not least, do not be afraid of asking a fair price for your goods, especially when you are conducting a cam-

UNIFORM HEAT REGULATOR CONTRACT

For The Heating Contractor

Proposal No.....

Mr.....

Address.....

..... (hereinafter known as the seller) proposes to furnish and install a..... heat regulator, with an eight-day clock, on the.....heating plant in the building occupied by Mr..... (hereafter known as the purchaser) located at.....; and to guarantee this equipment against any mechanical defect for a period of one year from date of installation for the sum of..... Dollars, payable as set forth below.

This proposal is for immediate acceptance and includes the standard conditions printed on the reverse side of this contract which are by reference made a part hereof. This proposal expires at noon.....19..., and is not valid unless accepted on or before that date.

With the understanding that the purchaser is fully protected by the seller's guarantee as set out above, the purchaser agrees to pay the seller, his or their successors, or assigns, the sum of.....Dollars payable as follows:.....Dollars cash in hand and.....Dollars on the.....day of each consecutive month hereafter; the final monthly payment to be the balance then due.

The deferred payments under this agreement to be covered by Labor and Material Acceptances, duly accepted by signature of the purchaser.

It is agreed that the title and ownership of the said.....heat regulator is to remain in the seller, his or their successors or assigns until all of the aforesaid indebtedness is fully paid, and that, thereupon, the title and ownership is to pass to the purchaser.

The purchaser agrees to take good care of said.....heat regulator and to be responsible for its loss by theft, fire or other cause, and not to remove it from his residence at

....
Street City

.....
State

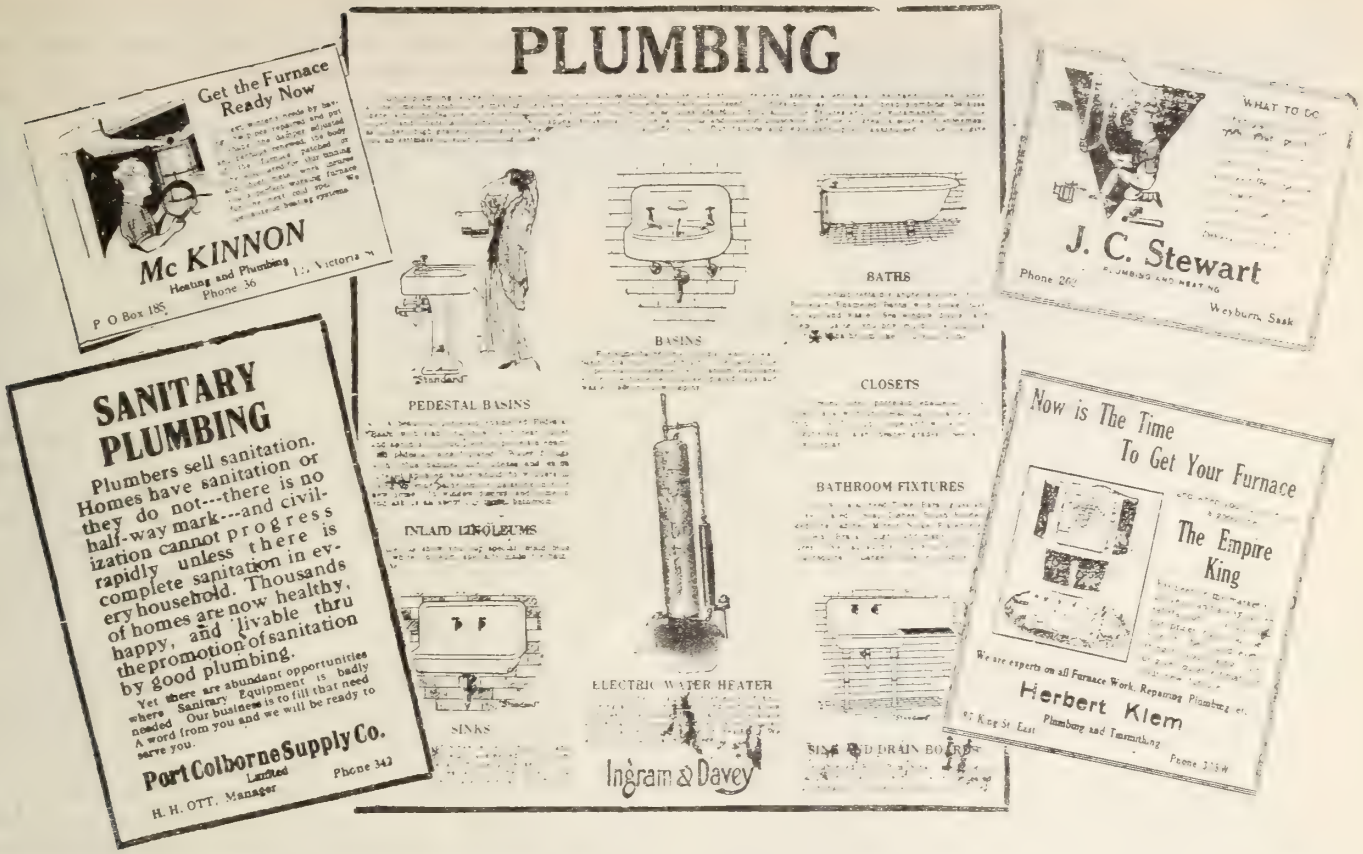
It is further stipulated that no other agreement, oral or written, expressed or implied, shall limit or qualify the terms of this contract.

Accepted..... 19...

By.....

Signed.....
Contractor.

Per.....


PLUMBING
Get the Furnace Ready Now
Mc KINNON
Heating and Plumbing
Phone 36
P O Box 185
SANITARY PLUMBING
Plumbers sell sanitation. Homes have sanitation or they do not---there is no half-way mark---and civilization cannot progress rapidly unless there is complete sanitation in every household. Thousands of homes are now healthy, happy, and livable thru the promotion of sanitation by good plumbing.
Yet there are abundant opportunities where Sanitary Equipment is badly needed. Our business is to fill that need. A word from you and we will be ready to serve you.
Port Colborne Supply Co.
Limited
Phone 343
H. H. OTT, Manager
PEDESTAL BASINS
BASINS
BATHS
CLOSETS
BATHROOM FIXTURES
INLAID LINOLEUMS
ELECTRIC WATER HEATER
SINKS
Ingram & Davey
J. C. Stewart
Weyburn, Sask
Now is The Time To Get Your Furnace
The Empire King
Herbert Klem
Plumbing and Tinsmithing

Part of the campaign for heating appliances this fall is the local newspaper advertising. Here are some samples of recent advertising dealing with the preparation of the heating system for the winter, the installation of gas and electric water heating and sanitary plumbing. The comfort of having hot water always at hand is a good point for such advertising and the need for heat regulation due to fuel shortage and on the general basis of economy might also be dealt with.

paign of this kind. Do not be guided by the prices others have made or are making; but establish a price that will net you a fair margin of profit, and one that will enable you to give service to your customers as they should be served. Such a policy will make your campaign a real success.

The fear of competition is greatly exaggerated. Keen competition exists only because too many business men choose to follow the course of least resistance. They are all after the same contract or sale instead of devoting some of their time, money and energy to creating extra demand for their services and wares.

If you have been forced to take work at a very low margin, due to keen competition, why not get out of the rut; and plan a sales campaign of one kind or another. You'll be surprised how many real jobs can be picked up while soliciting orders for some small appliance. Very often the party whom you work on as a prospect for a heat regulator will turn out a customer for a heating or a plumbing job; but if they were left alone to develop the desire, it would never materialize. Even if it did, they would have to go shopping, in order to find what they wanted, thus breeding competition.

M. A. Brian, 147 Sandwich St., W., Windsor, Ont., has secured contract at Harrow, Ont., for installing new steam heating system in the public school at $2 130.

Standard Conditions Adopted by the National Trade Extension Bureau for Heat Regulator Installations

No. 1. All material and labor required to complete the work and not included in this proposal shall be furnished by the purchaser or his agent in such manner as not to delay the progress of the work.

No. 2. The seller will guarantee the installation against original defects of material and workmanship for a period of one year from the date when the Heat Regulator is ready for practical use. The seller agrees to replace without expense to the purchaser, except transportation and board for men, any part requiring replacement within the period stated above, due to inherent defects of material and workmanship. Be it understood that the seller will not under any condition pay for any labor or material, or any defect other than repaired by his own men. The liability of the seller in this matter extends only to the labor and material furnished by the seller and does not cover any contingent liability either to buildings, contents, products or persons.

No. 3. If upon completion of the work covered by this proposal, weather or other conditions over which the seller has no control, do not permit of a proper test, this shall not be considered a sufficient reason for withholding payment.

No. 4. This proposal is based on the prevailing rate of wages and the execution of the work during regular working hours.

No. 5. It is hereby expressly provided that the title to the material to be furnished by the seller under this proposal, shall be and remain in the seller until all sums of money called for in this proposal, and required to be paid by the purchaser, are fully paid the seller in legal tender, and that until said sums of money are so paid, said material shall be, and by the signing of the acceptance hereof, it is agreed that they shall be and remain personal and moveable property in whatever manner they may be annexed to realty and that in case of default in the payment of any of the instalments provided for in this proposal, the seller is hereby authorized to enter upon said premises and to take possession of and remove said material at any time and that, in such event, the seller shall have the right to retain as rental for the use of said material, any sum or sums of money that may have been paid by the purchaser; and that all expenses incurred by the seller by litigation arising out of and caused by failure to make the payments as herein provided for, shall be paid by the purchaser.

No. 6. The signer of the acceptance hereof hereby acknowledges that he or she is the sole owner of the property in which this contract is to be executed, or that he or she has been authorized to sign same for all parties interested in the property; and he or she further declares that the property is and shall remain free from mortgages or other encumbrances that can affect the carrying out of the conditions herein set forth.

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Plumber and Steamfitter of Canada

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Furthering Interests of Good Health

GOOD HEALTH Week is to be held in Canada and the United States from October 23 to 30. This is the first occasion of this kind to be observed in Canada and it is hoped to make it a regular feature in years to come.

Plans are being made by a group of manufacturers interested in sanitary equipment, to make this week a memorable one. The idea will be developed through the co-operation of health department officials, plumbers, retailers and others coming in contact with the public. Obviously it provides plumbers with a splendid opportunity to drive home the necessity of modern plumbing, heating and ventilating equipment in the interests of Good Health. There is a broad field here awaiting development.

Because ventilation until very recently has been regarded as a serious problem only in large buildings where a number of persons worked or lived, private homes have been often less well ventilated than charitable and penal institutions. For as is well known, the amount of air space is so important to human health that laws and ordinances require hospitals, schools, jails, and many public buildings to have a stated amount of air space for every inmate or pupil.

And in many college towns today committees investigate rooming houses and refuse to endorse those which do not have the proper amount of window space—because they know the harmful effects of lack of air.

Now, however, it has also been proved that in spite of the greatest care a woman may exercise in getting fresh air into her home, she frequently finds it difficult to get the bad air out.

The most well-cared-for homes are not always free from lingering suggestions of cookery. More than a hint of breakfast bacon can often be detected in the best regulated households. Any woman who has struggled to get her house well-aired after deep frying, knows that traces of smudge and grease will get beyond the kitchen door, into the upholstery, on the woodwork and seek many a hard-to-keep-clean corner.

In these servantless days much has been done to make housework pleasant and to reduce it to the minimum in order that the house-wife may be released from the drudgery that steals her rightful leisure. The realization that hot, fume-drugged kitchens take a heavy toll in weariness and exhaustion, has resulted in the very popular modern idea of providing mechanical ventilation in a home just as one would in a public building.

Contrary to general opinion, it is a very simple matter, quite inexpensive, and keeps in the home a constantly replenished supply of pure, fresh air, while the kitchen fumes, much dust and all foul air together with the unhealthful smudge and greasy deposit are quickly exhausted.

Not only large homes with established equipped kitchens, but small apartments and homes where the ventilation problem consists often in securing just enough air to avoid discomfort and chill and to insure absence of cooking fumes that have been heretofore unavoidable—these, too, have been able to solve this most perplexing problem all the year round with modern correct methods of mechanical ventilation.

Home builders, architects, and contractors should all insist on planning for this most up-to-date safety and health measure as one of the most important building specifications and the plumber should be in position to supply it.

Community Heating

THE DAY when all the buildings and homes of a community are heated from a centrally situated, municipally owned heating plant is a dream of the future that has often attracted the attention of engineers and citizens generally. As in the case of many other such schemes, great numbers of people believe in this one, but are content to dismiss the subject as being impracticable for the present. It is probable that a combination of cold weather and a shortage of coal next winter will revive this question and it will be discussed with the usual reservation that while it is desirable it is not for the present generation.

Yet central steam heating systems have been installed in various places in Canada, and generally with the most satisfactory results. True, they have been limited in their scope and have not been applied to a whole community, but nevertheless the success that has attended these smaller plants gives rise to the feeling that they could be operated on a much larger scale. The systems are often means whereby the exhaust steam from a plant operated for another purpose is used to heat business establishments, but there is no reason why they cannot also serve homes.

North Battleford has one of these central heating systems. The exhaust steam from a municipal power plant is used and there are between 40 and 50 customers. There are over 5,000 feet of piping and the system has cost $35,000. Although a municipal system, it has been financed by the patrons, the city, however, lending its credit in connection with the purchase of some of the supplies. According to M. D. Cadwell, the superintendent of utilities of North Battleford, a portion of the installation was made in the fall of 1920, but less than 10 consumers received steam that season. By the end of last September 30 customers were receiving steam. The superintendent adds:

The popularity of the service and the ever-increasing demand necessitated the installation of a new and larger steam main to supplement the original one to a point opposite the public library, from which point the main distribution system was commenced in the fall of 1920. This installation has been operating since November 26 last.

The estimated life of the plant is 50 years, and during cold days 150,000 lbs. of steam were delivered to the patrons every 24 hours.

Canadian Roads Get the Business

THE RAILWAY workers' strike in the United States has had the effect of diverting considerable business to Canadian railroads. Canadian railways have been carrying large shipments of automobiles to Atlantic ports for export from United States factories and many shiploads of grain from the Canadian Northwest which ordinarily go through the lakes to Buffalo and trans-ship by U. S. railroads are coming to Canadian ports on the Great Lakes and being trans-shipped by Canadian railways. The necessity of routing such trade through new channels at the present time might lead to a portion of such business being continually done in this manner. The only unfortunate thing is that Canadian railways are suffering from a shortage of cars due to many being tied up in the United States and the large number sent to the West to handle the grain, and are unable to give this new business as much attention as would otherwise be possible.

Mix 'Em Right and You Get Profits

Why a Retail Business Is a Chemical Laboratory That Compounds Profits

or

How the Mixture of Retail Methods May Make Profits, Losses or Trouble

THE cartoon pictures for you a wise retailer—a man who understands that the retail business is a chemical laboratory where the merchant is a chemist who must carefully and accurately weigh and measure out the chemicals called Accounting, Advertising, Service, Display and the like to produce the mixture called Profits.

Much depends on the amounts and methods of mixing. For example, a good mixture makes Profits, while a poor one would result in Disaster. The store that used much Advertising and no Fairmarkup would of course be mixing its chemicals to make Disaster. The establishment that would mix Dishonesty with Noservice would be producing Trouble. Whereas the establishment that uses any or all of the following ingredients and mixes them in **proper proportions** cannot fail to make Profits. Study the list carefully:

Accounting system	Fairmarkup	Concentrated buying
Store meetings	Knowledge of goods	Prompt service
Display	Reading trade papers	Courteous service
Advertising	Knowledge of overhead	Joining trade bodies
Store arrangement	Turnover	Inventory system

To begin with, every establishment should have an accounting system. It is not always necessary to install an elaborate plan. That depends on the size and character of the business, but every retailer must know his daily progress, his receipts, his profits, his turnover, and so forth, and cannot be successful if he does not have a system that gives that information.

And there must be a proper proportion of advertising, a goodly and attractive amount of display, a maximum of efficiency and convenience in store arrangement. These are all among the chemicals that a first-class retailer-chemist will employ.

Fairmarkup is an important—even vital—ingredient. No business can turn out Profits without it. And don't forget that Fairmarkup has a lot of basic properties that must be included, such as rent, light, wages, advertising and other costs, as well as a fair return on the invested money and effort.

The reading of trade papers, membership in trade associations, attendance at conventions, good service and prompt service are all chemicals that will help to produce a bigger, more powerful portion of Profits. In your trade papers, among your associates, and at your conventions you will find ideas that will show you much about your advertising, display, turnover and general store arrangement. And the giving of service—prompt and courteous—is of course such a well-known part of Profits that no space needs to be spent on it here.

Note well the one ingredient—Concentrated buying—that is an important chemical and it must be **concentrated.** By concentrating your buying you make it more powerful, more influential. You give it strength. You make yourself an important person among your few wholesalers instead of being a minor individual among many concerns.

Study the entire list of ingredients thoroughly. Learn all you can about each. Get down to basic properties and basic principles. Study each, analyze your store and community and decide how much of each should be prescribed for **your** mixture of Profits.

Tuni

They call it "the wizardy of wireless" . . And, in truth, there is more than a smacking of witchery and magic in it; in this plucking from the air the sound of a human voice, speaking or singing five hundred miles away.

It is hard to realize that all about us is a confusion of unheard sounds; sounds that only the magic of the aerial antennae can catch and amplify so that our ears may receive them.

One recalls that delightful tale of the little boy who was given the magic, fairy spectacles through which he saw many wonderful things —things forever hidden from his companions. And how, likewise, radio may be called the Magic Ear, bringing to us, as it does, messages which, without its aid, were lost forever.

Just as we are surrounded by unheard radio messages so too are we surrounded by unseen opportunities.

When, for instance, a Sanitary Engineer says: "There is no business to be had," he is wrong; just as wrong as though he denied the existence of radio messages because he could not hear them.

Port Hope Sanitary

Head Office

Vancouver Office:
325 Howe Street

Factories:
Port Hope, Ontario

ng In

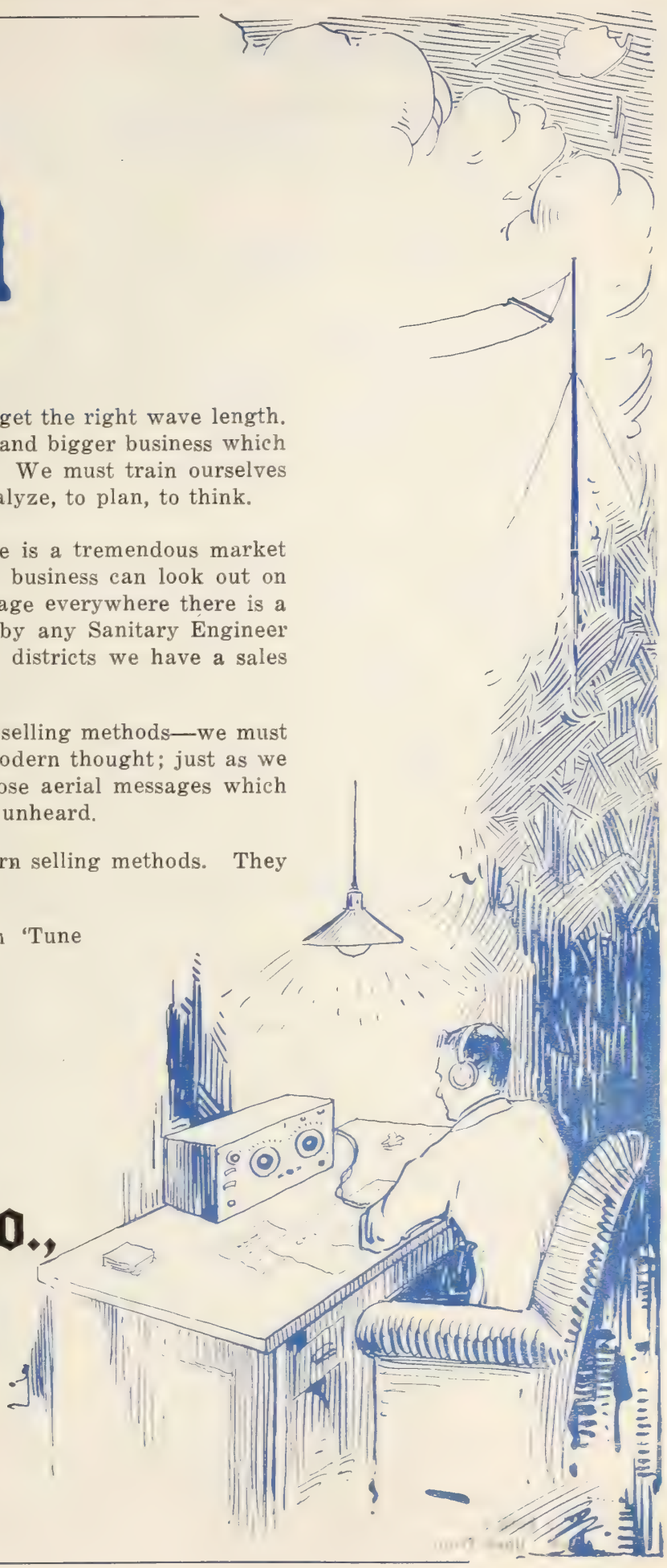
To get radio messages we must "Tune In"—get the right wave length. To see those hidden opportunities for better and bigger business which lie all around us, we must also "Tune In." We must train ourselves to look beneath the surface of things; to analyze, to plan, to think.

Right now, in every corner of Canada, there is a tremendous market for all kinds of plumbing fixtures; no other business can look out on so many potential sales. In castle and cottage everywhere there is a wealth of replacement business to be had by any Sanitary Engineer who goes after it; and further, in the rural districts we have a sales field practically untouched.

To get this business we must use up-to-date selling methods—we must tune in with modern selling practices and modern thought; just as we must use the "Magical Ears" to pick up those aerial messages which otherwise would go crashing through space unheard.

Port Hope Selling Helps are based on modern selling methods. They can't help but boost business for you.

Write us a line saying: "Show me how I can 'Tune In' with your Sales Helps."



Manufacturing Co.,
Limited

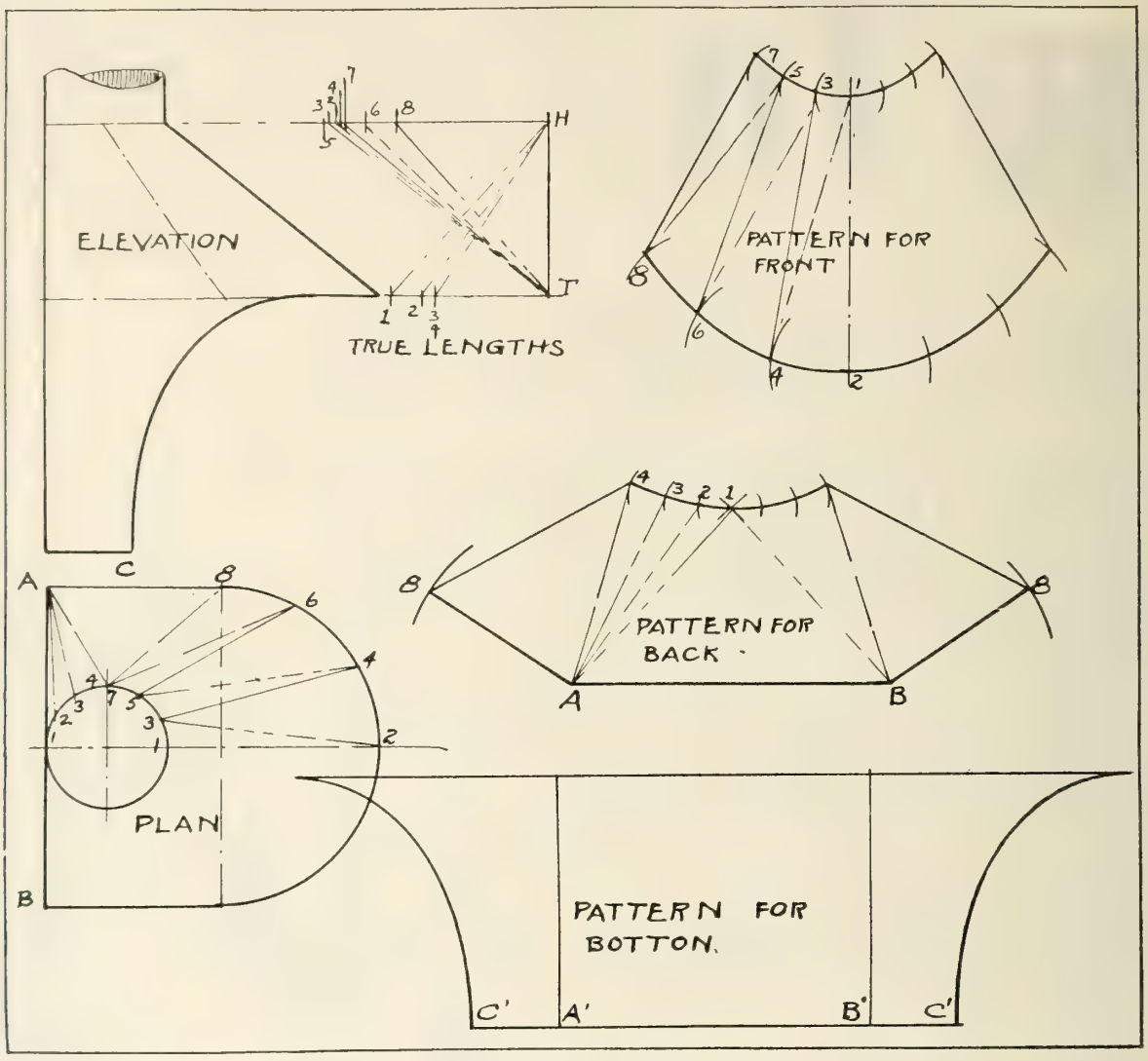
1204 Royal Bank Bldg., Toronto

Winnipeg Office: 405 Tribune Bldg.

Montreal Office: 301 Southam Bldg.

Patterns for Forge Hood

Written for Sanitary Engineer by O. W. Kothe, Principal St. Louis Technical Institute, St. Louis, Missouri.



Patterns for Forge Hood.

FORGE hoods can be made in a great many different designs and methods.

Our drawing in this case shows a simple method of developing the hood, treating the upper portion as a transition piece square at the back and forming a semi-circle at the front, then on the bottom an apron is attached, to give it the appearance of the real hood.

The main thing to lay out the problem of this kind is the transition piece.

So first draw the elevation, giving it the proper rise, and the projection, and then locate the opening in the plan and describe the top base and the semi-circle.

Divide the circle in any number of equal parts and treat the semi-circle in a similar way.

In practice only half plan need be treated since both halves are alike.

Now draw lines from the various points A-1-2-3-4 and also 1-2; 2-3; 3-4; 4-5, etc., of the front.

Pick these lines from the plan and set them in a diagram of true lengths, letting H-T be the height of fitting.

Set the back spaces as T-1-2-3, etc., and set the front spaces as H-2-3-4-5, etc.

In this way no confusion will be met with by drawing lines to the corners.

To lay out the pattern for back we treat it the same way as any square to round, by drawing a line as A-B equal to that line in plan.

Then we pick the true length H-1 and using A and B as centers, we strike and cross arcs in point 1.

Next pick one of the spaces of the top base of plan as 1-2 and using point 1 as center, strike small arcs as at 2.

Then pick true length H-2 and, using A and B as centers, strike and cross arc in point 2.

Repeat this until point 4 is established, and then pick space A-8 from plan and using A and B as centers, strike arcs as at 8.

Then pick true length T-8 and using points 4 as center, cross arcs in point 8 as shown and that gives pattern for back with the seam line as 4-8.

To set out the pattern for front, we draw a line as 1-2 equal to T-2 in diagram and then pick the girth 2-4 and 1-3 from plan and strike the arcs 3 and 4 as shown.

Pick true length T-3 and T-4 and using point 2 in pattern as center, cross arcs in point 3.

Then use the new point 3 as center, cross arcs in point 4.

The writer observes that the dotted line has been placed in reverse through an oversight as they should really run from 2 to 3 instead of 1 to 4, and 4 to

(Continued on page 38)

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights —Keep the Entire Series Where It May Be Referred to And Studied

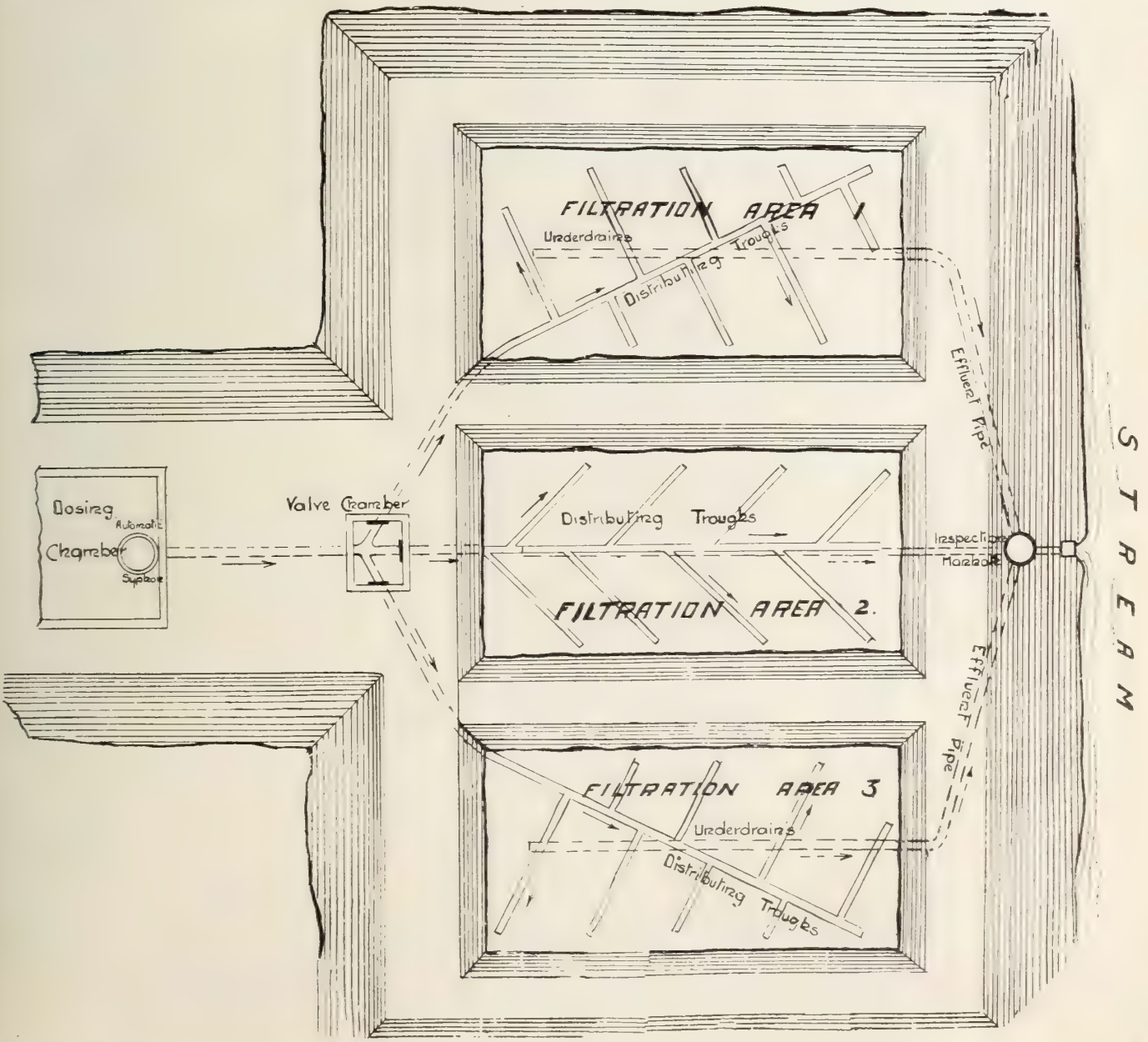
(Continued from last issue)

A circular spray should not be adopted as it only utilizes 78 per cent. of the filter surface whereas the Hexagonal and Square Spray nozzles utilize 100 per cent. of the filter surface as shown in sketch Fig. 87.

In deciding between the different systems of distribution, first cost and local conditions, as regards level and climate, govern the final selection but all of the above systems, (well installed and providing the sewage is free from fine suspended organic matter), will produce satisfactory results and it is always essential to make provision for easy access to same for cleansing purposes as all septic tank effluents have a tendency to clog not only the fine holes but also the filtrate itself the small insoluble matters in suspension which always exist in the effluent providing the clarified effluent does not go through a process of very fine screening.

WATERWORKS COMMENCED

Port Credit, Ont.—Work on the construction of the village waterworks system was commenced recently, but it is scarcely likely that the system will be in operation before 1923. In January, 1922, the citizens authorized the council to go ahead with the work, but repeated delays have occurred in making preliminary arrangements.



News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

FIRE LOSS

Quebec.—Four firemen were overcome by smoke and had to be rescued by their companions at a blaze which broke out in the basement of the plumbing shop of David Rousseau and Fils, 795 St. Valier street. The cause of the fire is unknown but it must have communicated with some material or acids used in the plumbing business which caused poisonous fumes to pervade the building.

IMPROVEMENTS NOW MADE IN HULL WATER WORKS

A decided improvement at the Hull city waterworks has been effected by City Engineer Theo Lanctôt in the installation of a 450 horse-power motor pump, which will take up the burden of pumping the city's water supply daily.

This was formerly carried by two hydraulic pumps and a 300-horse-power electrical pump, which in future will be reserved for emergency calls, such as fires, when the pressure requires to be boosted. The pump will have a daily capacity of six million gallons.

WESTERN ONTARIO NEWS

C. Edwards of the Edwards Plumbing Co., at Windsor, Ont., contemplates building a new dwelling.

S. H. Hammond, 765 King St., London, Ont., has been awarded heating and plumbing contract for new $6,000 residence for M. Burgin.

The Bridgeburg Iron Co., of Bridgeburg, Ont., is making rapid progress on the waterworks improvements on which Petrolea, Ont., is spending $42,000.

Charles Cox, Shea Apartments, London, Ont., is preparing plans for new $6,000 bungalow and wants prices on hot air heating, plumbing and electrical work.

Tenders are being received by Findlay and Darrach, 430 Talbot St., St. Thomas, for additions to schools to cost $110,000. Prices wanted on steam heating equipment, plumbing and ventilating systems.

Prices will be wanted shortly in connection with a new central heating plant at London, Ont., for the Western University. J. M. Moore, 489 Richmond St., London, is the architect, and boilers, radiation and supplies will be purchased.

INVESTIGATE SEWAGE DISPOSAL

Kitchener, Ont.—There is no intention on the part of the city engineer and committee that will go to Stratford and Woodstock for the purpose of investigating various examples of sewage systems to be found in each place, to make any change in the system at present in use at the sewer farm. The principal reason for the visit to the two cities is for the purpose of gathering information in connection with the development of the Spring street basin as a sewage disposal plant on a somewhat smaller scale than the present sewer farm. Engineer Shupe states there are systems in operation in both cities which are better adapted for the Spring street district than the system in operation on our own sewer farm. He stated that the system in Stratford required much less space for the treatment of sewage and for this reason it was especially interesting in view of the fact that the limited space in the Spring street basin for sewage disposal must be used to the best advantage.

PLUMBERS' ORGANIZER GOING TO EUROPEAN CONFERENCES

John W. Bruce, general organizer of the International Brotherhood of Plumbers and Steamfitters, has left for Great Britain and the continent, to attend the British trades union congress; the international labor conference at Geneva, where Mr. Bruce will act as adviser to Tom Moore, president of the Trades and Labor Congress of Canada, and to study labor conditions in all industrial centers on the continent.

Mr. Bruce stated that it was his intention to make a study of the building trades guild of Great Britain and of other European countries where progress has been made, and with this in mind he had made appointments with Cole and Hobson, leaders of the guild movement in Great Britain, and Herbert Tracey of the British Labor party. He also hoped to meet Rt. Hon. Arthur Henderson and other leaders of the British Labor political movement.

"We have not seen the agenda of the international labor conference, of course, but this gathering is likely to be an important one," said Mr. Bruce. "Many countries have failed to put into effect the terms of the labor sections of the Peace Treaty, and other countries are lagging behind. This conference is likely to be an important one, in view of this."

COURSE IN PLUMBING

A course in plumbing is offered in the Cincinnati schools. Graduates must demonstrate their ability to handle a monkey wrench and to make out a bill.

USE OF FUEL OIL IN OTTAWA PUBLIC SCHOOLS

The appointment of a special committee which is to inquire into the feasibility and practicability of using fuel oil to heat the Ottawa public schools now using boilers suitable to the use of hard coal, was the principal matter of business dealt with by the building committee of the Ottawa Public School Board.

The special committee is to make inquiries and investigation into the possibilities of using oil fuel in the schools whose heating systems now use hard coal, and report back to the committee. The decision of the special committee will, in all probability, be available for the next general meeting of the board. The possibility of the use of oil fuel is in view of the existing fuel situation.

EXTENSION MADE TO SEWAGE DISPOSAL PLANT

Whitby, Ont.—The sludge beds of the sewage disposal plant have been increased to about two and a half times their original size by an addition recently completed. The purpose of these beds is to dry the sludge, which is forced up to them from the bottom of the sedimentation tank, 40 feet deep. In constructing the sludge beds an excavation 2 ft. 6 inches deep is made and tile are laid on the bottom, after the herring bone system, that is, having one main row of tile down the middle with other rows running off to each side, and draining into the middle one. Over the tile, sand is spread to a depth of 6 inches. The action of the beds is as follows:—The sludge slowly escapes, both by evaporation, and by seeping through the sand into the drain tile, and thence into the creek. Thus the material only is left, and this is one of the finest fertilizers in use to-day and is sold by the Public Utilities Commission as such.

The public utility men are busy extending the sewers along Maitland St., and they are also putting in the new water main on King St., for the purpose of improving the fire protection at the Public and High Schools.

TENDERS FOR SEWERS

Tenders have been called by St. Catharines, Ont., for the construction of approximately ten thousand lineal feet of 8-in., 10-in. and 12-in. tile sewers.

APPROVE WATER BY-LAW

Englehart.—The ratepayers have approved two by-laws to arise money for the extension of the waterworks system of the town and the building of a town and fire hall. Debentures will be issued, and the work commenced immediately.

PROPOSE NEW SEWAGE SCHEME FOR SWANSEA

The proposed sewage scheme for Swansea, Ont., and district is arousing a good deal of discussion and will likely be voted on by the ratepayers next January. It is estimated that it will cost in the neighborhood of $750,000 to construct the system, which is badly needed in the district. At a ratepayers' meeting to be called in the near future the scheme will be thoroughly discussed.

WOULD HAVE $50,000 COMFORT STATIONS

Ottawa.—Building of city comfort stations to the value of $50,000 was advocated in Board of Control by Controller J. P. Balharrie. Neither Mayor Plant nor Controller Ellis, the only other members present, approved the proposal, which was tabled for future consideration.

Controller Balharrie said that in view of the work on the comfort stations in the two public bathing houses being delayed owing to changes in the committee's recommendation, the board should take into immediate consideration the preparation of a bylaw for submission to property owners at the next civic election providing for the raising of $50,000 for the erection and equipment of additional comfort stations.

PETERBORO PUMPING STATION

Peterboro, Ont.—The pumping station for the sewage disposal plant will probably be located on the Otonabee side of the river opposite the foot of Park Street. Ald. Crowe said that this site had been approved by the engineer of the Provincial Board of Health when the plans of the whole project were recently submitted to him by City Engineer Parsons.

This proposal which will have to be ratified by the Council, will obviate the necessity of buying property for the pumping station which will be erected on part of the land bought from the Wilson estate for the disposal plant. Ald. Crowe also stated that the sewer on King street will not have to be altered. It was provided with a 22 inch pipe and the grade or fall from Park street to Lock street is only 18 inches. This would leave a clear passage of 13 inches at its lowest point when the Lock street sewer is diverted to King street to connect with the Park street sewer and the disposal plant.

PLUMBER GETS FORTUNE

London, Ont.—James S. Black of Mount Pleasant Avenue closed the door on his little plumbing store and repair outfit and left for Downey, California, to claim a fortune of $100,000 left to him by a sister who died a year ago.

PROGRESS IN BUILDING

Montreal.—Figures for the first eight months of the present year, issued at the City Hall, show that construction work in Montreal is still making good progress. An increase of over $3,000,000 is recorded over the same period last year. The greater part of this increase is attributable to the demand for more dwelling houses, which has followed a time of light building during and immediately after the war. In addition to dwelling houses, permits for five new schools have been issued representing a cost of fr $150,000 to $200,000 each. Several new churches were also built during this period.

According to official records from the building inspector's department, 3,786 permits were issued from January 1 to August 31, representing a value of $13,514,234, as compared with 3,240 permits for buildings valued at $10,430,176 for the corresponding period of 1921.

QUESTIONS & ANSWERS

Question.—From enclosed sketch of a bath room with fixtures all on the ground floor, do you think this system would work all right?

F. Gibson, Ripley, Ont.

Answer.—There is no fault to find with your lay-out which will work.

There are some points however that it would be well for you to bear in mind. First, that as pressure is gravity (approximately one pound to every two feet of height) so that if attic tank were in a storey and a half bungalow, pressure would not be strong enough to have anything other than sluggish circulation. Second, there is no need of putting a hole near the top of boiler tube because in this case you are feeding from an open tank. The reason of the hole in boiler tube is where feed is by pressure from mains or closed tanks wherein the wasting of a shut-off main supply cock through the waste tube would syphon the boiler. The hole is therefore to break the syphon and avoid emptying the boiler. Third, we would like to see some method of taking care of the sediment at the bottom of boiler by means of a tee and nipple, although this is not so necessary in the case of soft water as it is with the limy hard water.

PERSONAL

W. F. Hill, Jr., sec.-treas. of W. H. Cunningham & Hill Ltd., Toronto, well known to many Ontario sanitary engineers has now taken over the Western field for the above company with headquarters in Winnipeg.

Contracts Awarded

Kitchener, Ont.—Plumbing and heating contracts for residence costing $7,000 for Jno. Spalinger, Peter St., are awarded to Ruppel & Co., 43 King W.

B. F. Maltby of Newcastle, N. B., has been awarded the contract for heating and plumbing of Bank of Nova Scotia, Newcastle, contract price $2,000.

Montreal.—Plumbing and heating contracts for residence and garage costing $12,000 for O. Latreille, 1213 St. Andre St., are awarded to F. X. Guay, 244 Cuvillier St.

Coniston, Ont.—Plumbing and heating contracts for rectory costing $10,000 for Rev. J. H. Coallier are awarded to Mr. Racine. Geo. Drew, architect, 334 Albert St. E., Sault Ste. Marie.

Montreal, Que.—Roofing, plumbing and heating contracts for residence costing $12,000 for M. Gravel, 631 St. Valier St., are awarded to Lavigueur & Menard, 2483 St. Lawrence St.

Prescott, Ont.—General contract for alterations and addition to school costing $27,000 for Bd. of Education is awarded to F. C. Hagarty, Brockville. Plumbing contract is placed with Mr. Ross, Prescott.

Jonquieres, Que.—Contracts for pipe and special fittings required for sewerage system extension costing $25,000 for Town are awarded to Canada Foundries Ltd., St. Maurice St., Three Rivers, and Terreau & Racine, 196 St. Paul St., Quebec.

Port Credit, Ont.—Contracts for sections of the new waterworks system were let by the town council. The pump for the plant will cost $7,658, and the hydrants $62.45 each. Gore, Nasmith & Storie were instructed to appoint a resident engineer, to be here during the period of construction.

HARD COAL STRIKE SETTLED

Anthracite miners and operators have settled their wage differences, after more than five months' controversy.

NICKEL PLANT RESUMES

Sudbury, Ont.—The plant of the International Nickel Co. at Coppercliff, has commenced operations after having been closed down for eighteen months. The company is operating at one-third of its wartime capacity. Regular shipments of the matte will be made to the refinery at Port Colborne, where all the refining will be done hereafter, the refinery at Bayonne, N. J., having been scrapped. The refined nickel will be shipped to the new $2,000,000 rolling mills at Huntington, Va., where it will be rolled into malleable metal and marketed mostly in the United States.

Forestalling the Usual Fall Rush

Plumbers Look for Active Fall Months—Endeavouring to Persuade People to Have Repair Work Done Before the Usual Rush —Contracts Are Taken at a Lower Figure if Work Can be Done in Open Weather

GENERAL reports indicate that the past summer season has been fair, and fall work is opening up quite satisfactorily. Activity in building circles has offered an opportunity to cash in for some, although unfortunately much of this work is said to have reached channels other than the legitimate master plumber. The larger shops received some good sized contracts from heavier building construction, but smaller ones are reported to have suffered from not obtaining work through the dwelling house type of building, because much of this was let to plumbers who could hardly be termed master plumbers in the true sense of the word. Notwithstanding this factor, the trade is generally in a satisfied mood, and quite optimistic regarding the outlook for the fall and winter months

"With the month of September now at hand people are moving in from their country homes, require alterations and repairs to their heating swstem, and already we are getting a certain amount of this work," said a master plumber to Sanitary Engineer.

Encouraging Earlier Repairs

Speaking with another member of the trade with regard to the usual rush for furnace and heating system repairs after the first sign of cold weather, it was stated that a vigorous attempt was being made to persuade customers to get their work done now while the fine weather is still being experienced. This year offered a special opportunity for this as many were asking for advice regarding fuel for the coming winter, and whether their boilers and furnaces were suitably fitted for the use of soft coal or even wood, if the situation demanded such.

It was usually necessary to increase the staff when the call for this work commenced in the later months of the year, whereas during the summer months up to this period the plumbing shop was often a little slack. By spreading this work over a longer period, it would help to shorten the quiet season, and avoid a rush which means losing some jobs through not being able to attend all of them at a time convenient and satisfactory to the customer.

New Work Can be Done Cheaper

An argument used to good advantage by one master plumber, especially in dealing with new installations, was that they could handle the work more satisfactorily in open weather, and can quote cheaper than when handicapped by winter weather conditions. Just recently a builder approached them to have a hot water system installed. He did not want the work commenced until a later date as the house was not required for occupation until the first o the year. It was thought that to start the work in November or even December would be quite time enough. The building was for his own home and payment for a heating system a month or so earlier would make little difference as the plumber presumed the money was already in the bank to cover all building expenses.

When this particular job was figured two prices were submitted, one for immediate installation and the other if work was not commenced until November. There was a difference of approximately fifty dollars in the two figures and needless to say the man came in for an explanation. It was a simple matter to point out how the plumbing shop would benefit if they could at once commence the job, and the variation was sufficient to secure the work immediately.

"We benefitted to this extent," stated this plumber, "our men do this work at a time when they were employed at jobs which were not very profitable to the employer, whereas we usually have all we can handle of this class of work, and sometimes more, in later months."

EFFECT SAVING THROUGH OIL HEATING PLANT

Montreal.—Oil heating has proved a great success at the General Post Office and has resulted in a saving at the rate of approximately $18,000 a year, according to A. Morrison, mechanical engineer at the Public Works Department, Dominion Government. Installed in January of last year and started on February 15, it saved, in the short time it was in commission, he said, about $2,500, and proved altogether the most successful plant put in.

The building previously was heated by steam. Oil heating has proved clean and neccesitates the service of one man only for each eight-hour shift. After attending to his burners, it is stated that this man can be utilized in other capacities.

WANT SEWERS AT ONCE

After various proposed sewerage schemes for Todmorden, Ont., and district had been outlined from the engineer's report by Secretary Fred M. Hazelton, Todmorden ratepayers expressed the feeling that installation of sewers should begin at once.

TEST PLUMBING BY-LAWS

Toronto.—City and township by-laws were quoted in County Court when I. F. Kelly appeared on the charge of installing plumbing in York township without a permit. The city of Toronto has a by-law forbidding plumbers doing work in Toronto unless they live in the city. The township passed a by-law in retaliation to prevent Toronto plumbers from working in the township while plumbers in the township were discriminated against by the city.

PATTERNS FOR FORGE HOOD

(Continued from page 34)

5 instead of 3 to 6, etc.

Hence, the reader must not get confused with the lines reversed.

Next describe arcs 5 and 6 in pattern and then pick true lengths T-5 and T-6 from diagram and, using the new point 4 in pattern as center, cross arcs in point 5, and then use the new point 5 as center and cross arcs in point 6.

This enables repeating this process until points 7-8 are established.

Draw lines through all lines where arcs cross and your pattern is finished.

In setting off the pattern for the lower apron, the width is picked from the plan as A-B and is set as A'-B'.

Then the side line A-C is set on and the curve is reproduced directly from elevation and that finishes the pattern.

Laps for seaming must be allowed extra, also for enclosing wire or rod on the edges.

TOWN SEWER SYSTEMS

An interesting booklet entitled "Has Your Town a Sewer System?" has been recently issued by the Clay Pipe Publicity Bureau, Toronto. This booklet deals with sewer systems in general in comparison with unsanitary conditions, and the book is replete with a number of striking illustrations on the subject. Various subjects such as the health of the citizens, infant mortality, water supply, septic tanks, and sewer construction, attract particular attention.

GURNEY ROUND BOILERS

A useful little catalog has just been issued by the Gurney Foundry Co., Ltd., Toronto, covering the Gurney line of hot water and steam round boilers. In the preface, the manufacturers point out that the results of their experience in the making of round cast iron heating boilers are briefly depicted in this booklet. Several of the most popular types are illustrated, while specific details are given in each instance. Various sectional views of Gurney round boilers provide interesting data. Standard dimensions of the different series, with sizes, numbers, and connections, contain a wealth of information on this topic. Copies can be secured from the above manufacturers on request.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

Markets at a Glance

AN EXTENSIVE number of price developments, all of which are in the nature of advances, attract special attention to the current plumbing and steam-fitting supply markets. Important upward revisions are noted on range boilers, both lapweld and seamless boiler tubes, cast and malleable pipe fittings, galvanized sheets, blue-annealed and black sheets, stocks and dies, pig iron and certain galvanized products such as galvanized steel sinks, tanks and wash boilers.

OTHER sanitary and heating materials including brass compression goods, corrugated sheets, eavestrough and conductor pipe appear with a decidedly firmer market tone, and future increases in quotations are considered quite possible in certain quarters.

CURRENT trade is described as spotty, many districts recording brisk activity while other sections report that prevailing business is just moderate. Building activities, however, keep up in good volume for this season of the year, and in spite of the approach of cooler weather conditions, a brisk movement of numerous building materials and supplies of interest to the trade is evident.

OWING to the threatened coal shortage, special interest is being displayed in oil heating apparatus, while other products such as radiators and boilers are enjoying marked activity. Some degree of unsettlement is again noted in the market for enameled ware lines, but endeavors to place these products on an improved basis are stated to be under way.

Montreal Markets

MONTREAL, September 14.—A long budget of price revisions is recorded on the local markets for plumbing and steam-fitting supplies. A feature with regard to these changes is that they are all in an upward direction. Higher quotations on malleable and cast pipe fittings are noted, while increased quotations on range boilers also attract attention. Practically all sizes of boiler tubes, both seamless and lapweld, show higher price levels. Through a revision in discounts, stocks and dies are advanced in price. A revision in galvanized ware prices is of interest to many. Galvanized tubs, pails, garbage and ash cans, oil tanks, wash boilers and galvanized steel sinks are now higher in price. Eavestrough, conductor pipe, elbows and corrugated sheets are unchanged in price, but the tone of the market for these products is very firm. A further advance in flat galvanized sheets is anticipated, a strong undertone being evident. Minor revisions are made in quotations on certain scrap metals, while the ingot metal markets are chiefly in a firmer position.

HIGHER PRICES NOW QUOTED ON GALVANIZED WARE

Montreal.

In sympathy with rising costs of raw materials, particularly galvanized iron, quotations on galvanized ware, such as pails, tubs, garbage and ash cans, tanks, boilers and sinks, now show price increases of varying extent. The discount on these goods is now 10 per cent. former discount being 17½ per cent off list prices.

This is the second revision in these lines during the current year, quotations in June last being reduced from list prices to 17½ per cent discount. Manufacturers in naming present prices state that since that time the trend of galvanized sheets has been upward, but increase in the finished products were withheld until the continued rise in raw material would not permit manufacture at former lower levels. It was thought some time ago that the gain in sheets was more or less of temporary duration, but with firmer prices continuing for some months following, it would appear that the rise was of a healthy nature, with prevailing higher levels likely to rule for some little time to come.

UPWARD REVISION IN BOILER TUBE PRICES

Montreal.

Current quotations on boiler tubes are again revised, practically all sizes in both seamless and lapweld being brought to higher price levels. It is stated by distributors that the firmer tendency in the steel industry generally is now reflected on these products and prices are increased in line with replacement costs. There is a slight improvement in demand owing to a fair amount of repair work being done and dealers have found their stocks becoming depleted, thus making it necessary to enter the market for new supplies. It is pointed out that higher levels have been quoted at primary centres for some weeks past, but distributors did not increase their selling prices until they were forced to purchase. Following are revised price levels:

BOILER TUBES—

	Seamless	Lapweld
1 inch	19 00	....
1¼ inch	21 00	....
1½ inch	20 00	....
1¾ inch	23 50	....
2 inch	20 00	19 00
2¼ inch	23 00	21 00
2½ inch	26 00	22 50
3 inch	32 00	28 50
3½ inch	37 00	33 00
4 inch	47 00	42 00

Prices per 100 ft., f.o.b., Montreal.

MALLEABLE AND CAST FITTINGS ARE HIGHER

Montreal.

Following the revision in an upward direction on wrought nipples and couplings two weeks ago, is the announcement of higher prices on cast and malleable fittings this week. Increased costs have resulted in a revision in selling prices to the extent of from three to five per cent. on the various lines. Cast iron fittings are now quoted at less 27 per cent., former quotations being less 30 per cent. Malleable fittings are now 70 per cent of list, effective from June 1st last, former discount being 70 and 5 per cent. Following are the new discounts:

PIPE FITTINGS—

Cast iron fittings	27%
Plugs, cast iron	27%
Do., solid	27%
Do., countersunk	27%
Bushings, cast	27%
Do., malleable	30%
Unions	30%
Flanged unions	45%
Flanged fittings	27%
Dart unions, black, 33	1-3%
Dart unions, galv.	13%
Nipples, ⅛ to 4", close and short	55%
Do., long	60%
Do., 4½ to 8", close and short	45%
Do., long	50%
Couplings, 4" and under	25%
Do., 4½" and larger	5%

Malleable Fittings—

Piece list effective June 1st, 1922. Discount 70-5 per cent.

ADVANCED QUOTATIONS ON RANGE BOILERS

Montreal.

Manufacturers announce an advance in quotations on the various sizes of range boilers. Standard boilers are now quoted at less 45 per cent., extra heavy at 35 per cent. off standard list prices. Manufacturing costs are said to have gradually increased with the advances made in raw material prices, especially galvanized sheets. Although market levels on sheets have shown repeated increase during recent months, quotations on range boilers have remained unchanged for many months past. The market for these products is also reported as somewhat more settled, price shading not being in evidence to any great extent among distributors such as was the case earlier in the year. Following are list prices and revised discounts:

RANGE BOILERS:—

5	Gallon	$13.50
12	"	14.00
18	"	15.00
25	"	16.50
30	"	17.50
35	"	20.50
40	"	22.75
52	"	38.00
66	"	60.75
82	"	74.00
100	"	103.00
120	"	117.00
144	"	164.00
168	"	187.00
192	"	210.00

Discounts, Standard weight, 45 per cent.
Extra Heavy, 35 per cent.

NO CHANGES MADE IN ENAMELLED WARE PRICES

Montreal.

Recent developments in the local market for enamelled ware would indicate that a more settled feeling may now exist among distributors, and price shading may not be carried on to the same extent as formerly. At a recent meeting of dealers in these products it was decided to withhold any announcement of higher prices until such a time as present quotations were more firmly held by all concerned. It was admitted that price levels at which many lines were now selling offered little or no margin of profit, and even if the market was on a steady basis prevailing quotations of 33 1-3 per cent. off list prices were very firm when increased cost of carrying on a business to-day were taken into consideration. After discussion the decision was reached that there was little if anything to be gained by advancing quotations, this only offering a wider scope for price concessions, but an effort would be put forth to stabilize market conditions. Unchanged prices and discounts are the following:

ENAMELED WARE—

Sinks, roll rim—			
18 x 30			$23 00
Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$ 7 50	$ 7 40	$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in wide			61 40
Bath tubs, 5½ feet			67 10
Lavatories—			
17x19 in. Apron F139 or P4045			15 30
18x24 in. Apron F154 or P3845 or P3847			23 60
18x21 in. Apron F169 or P4205			17 60
17x19 in. Roll rim. F241 or P4845			12 60

Less 33 1-3 per cent.

STOCKS AND DIES ARE REVISED IN PRICE

Montreal.

The discounts on stocks and dies, both solid and adjustable, is revised and these are now higher in price. They are now quoted at less 37½ per cent., former discount being 40 per cent.

CLOSET COMBINATIONS NOMINALLY UNCHANGED

Montreal.

Quotations on closet combinations are nominally unchanged, with trade continuing fairly satisfactory from a sales point of view, building requirements being still quite heavy. There is a certain amount of price shading in evidence, as in other enamelled ware products, thus prevailing prices can only be described as nominal.

CLOSET COMBINATIONS—	each
Closet, standard low down outfit	$25 00
Do., post hinge seat	26 00
Do., oak vitro, back strip seat	27 75
Do., oak vitro, post hinge seat	28 40
Do., china tank and back strip seat	28 50
Do., china tank post hinge seat	29 50
Do., vitro white with post hinge seat	30 75
Reversible trap bowl, less spud	11 25
Wash down bowl, less spud	10 00
Richelieu bowl	9 00
Siphon jet bowl	16 25
Extra for spud	0 60
Add for ⅜ in. valve on supply pipe	1 25
Add for bar hinge	No extra
Deduct for supply pipe	0 80
Deduct for floor hinge	0 60
Wood strip seat and cover	3 05
Post hinge seat and cover	4 25
Oak, oak vitro, or Pussyfoot tank with fittings, less seat	13 20
Vitreous china or enamelled iron tank, with fittings, flush elbow and supplies, less seat	18 50
White Vitro or Pussyfoot tank with fittings, flush elbow and supplies	12 65

FIRM TREND CONTINUES IN WROUGHT PIPING

Montreal.

Current quotations on wrought piping remain at the recently revised list No. 56. Notwithstanding this increase in prices, manufacturers still describe the tone of the market as firm, with American markets also continuing to show a good amount of strength. Assisting the firmer attitude generally noted in the steel industry is the steady brisk demand for wrought pipe, sales having continued in good proportions practically all through the past summer season. With this tendency continuing, a steady to firm market is anticipated throughout the fall months.

SATISFACTORY TRADE IN SOIL PIPE FITTINGS

Montreal.

Trade in soil pipe and fittings is again described by manufacturers and distributors as quite satisfactory. In production circles prevailing prices are said to be firm notwithstanding the recent price advances made. Raw material costs are still on an upward trend with indications that higher prices still will be reached. Following are present price levels:

SOIL PIPE—

2 and 3 inch	35%
4 inch	35%
5 and 6 inch	35%
8 inch	net
Fittings—	
2 to 6 inch	45%
8 inch	net

GOOD MOVEMENT OF BOILERS AND RADIATION

Montreal.

Manufacturers of boilers and radiation report a steady demand for their products, activity in building circles continuing quite satisfactory, especially in the larger centres. Current quotations on both lines are unchanged, with the undertone of the market remaining in a firm position. Recent increases in pig iron quotations and the present coal situation, which is none too satisfactory even yet, are said to be two factors contributing added strength to the former stiffening tendency in products of this nature. List prices and discounts are as follows:

RADIATORS AND BOILERS—

Radiator list prices are for 1, 2, 3, 4 and 5,-column radiators per square foot.

45 in. to 38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in, $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60. Discount 59% for hot water and 60 per cent. for steam.

Wall Radiators—5 ft. $1.15; 6 ft., $1.10; 7 ft., $1.05; 9 ft., $1.05; 12 ft. $1.05. Discount 56%

Boilers—Round hot water boilers, low base only (high base discontinued); sizes from 0 to 10, 64% off list.

Square or sectional hot water or steam boilers, 15-in., 20 per cent.

For Ontario Government trimmings add 5 per cent.

Square or sectional steam boilerfs, 19 in. to 36 in., 20 per cent.

Square or sectional steam boilers, 19 in. to 36 in., 20 per cent. Ontario Govt. trimmings, 10 per cent. discount.

Round steam boilers, standard trimmings, 28 per cent. off. Ontario Government trimmings, 25 per cent.

All prices f.o.b. Toronto, Montreal, Guelph,

FIRM TENDENCY IN TROUGH AND PIPE

Montreal.

No change is made in quotations on eavestrough, conductor pipe and elbow, but the market remains in a very firm position. One local manufacturer stated that he would not be surprised if higher prices were announced at any time. The stronger tendency in raw materials such as flat galvanized sheets has firmed the market for these products for some time past, and with continued strength being shown in the sheet markets increased prices are considered imminent. Present unchanged list prices and discounts are as follows;

EAVESTROUGH:

O. G. round and half round, per 100 ft. 8 in., $16.90; 10 in., $18.70; 12 in., $22.20; 15 in., $29.80; 18 in., $37.80.

O.G. Square bead, per 100 ft.: 8 in., $15.90; 10 in., $17.70; 12 in., $21.20; 15 in., $28.80; 18 in., $36.80.

Discount 70|10 per cent.

CONDUCTOR PIPE—Round, Plain and Corrugated. per 100 ft.; 2 in., $18.40; 3 in., $22.30; 4 in., $29.60; 5 in, $40.00; 6 in, $49.00; 6 in., $49.00.

Discount 70|10 per cent.

CONDUCTOR ELBOWS—

Plain or corrugated, price per doz.

2 in., $5.25; 3 in., $6.00; 4 in., $10.50; 5 in., $24.00; 6 in., $29.00.

Discount 60 per cent.

FIRM TONE CONTINUES IN CORRUGATED SHEETS

Montreal.

The market for corrugated sheets is still described as firm, with little actual change in the situation from previous weeks. The stronger market tone in flat galvanized sheets and a slightly improved demand are the two factors contributing a firm tendency in these products. Although there is no direct indication that

higher prices will be named in the near future, manufacturers state that the trend is undoubtedly in an upward direction. Unchanged prices and discounts are the following:

CORRUGATED SHEETS—	Per 100 Sq. Ft.
No. 28 gauge	6 50
No. 26 gauge	7 00
No. 26, U. S. gauge	8 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50

Less 10 per cent.

Lighter than 24 gauge and wider than 27 inches, 75c. per square extra.

SLIGHTLY FIRMER TONE IN SCRAP METALS

Montreal.

Minor price changes in an upward direction are reported on the scrap metal markets, such as on zinc, heavy copper, and machinery cast. Markets in general, however, remain in a quiet position, with very little buying in any line. Machinery cast is increased $1.00 per gross ton, a slightly firmer tendency being noticed in this metal owing to the scarcity of pig iron. Local dealers' average buying prices are the following:

Automobile Tires	**0 50**
Rubber Shoes	0 02
Yellow brass	0 05 to 0 06
Red brass	**0 08¾**
Light brass	**0 04**
Scrap zinc	0 03¾
Lead, heavy	0 04½
Lead, tea	0 03
Light copper	0 08½ to 0 09
Heavy copper	0 11¼
Wrought iron, R. Rd., No. 1 per gr. ton.	**10 00**
Malleable scrap (ton)	9 00 to 10 00
Pipe scrap (ton)	7 00
Heavy melting steel	**9 50 to 10 00**
No. 2 busheling	**3 00**
Boiler plate	8 00 to 9 00
No. 1 machinery cast	20 00 to 22 00

PRIMARY COTTON MARKETS AGAIN RECORD ADVANCE

Montreal.

The undertone of the cotton waste market is further strengthened by the firmer tendency in raw cotton circles, the markets in primary centres showing another advance in prices. Although this tendency may reflect on certain finished products, domestic manufacturers of cotton waste anticipate a steady market, and look for little or no change in prices for the balance of the year. Trade continues in seasonable proportions at following prices:

COTTON WASTE—Cream polishing, 18c. per lb.

White—XXX extra, 16c.; XX grand, 15c., XLCR, 14c; X Empire, 13c; X press, 11½c.

Colored—Fancy, 13½c.; Lion, 12c; Popular, 9c; Keen, 7½c.

Wool Packing—Arrow, 24c.; Axle, 20c.; Anvil, 16c.

Dominion Wipers—White cotton, 20c; colored cotton, 14c.

NO CHANGE YET MADE IN BAR PRODUCT PRICES

Montreal.

Although the increased price of $3.25 was thought probable on the local market even before this date, quotations are still unchanged with $3.15 base generally quoted. Distributors describe present trade as remaining quiet, although slightly improved and stocks are fully ample to take care of present require ments. Undoubtedly the market is very firm from a production standpoint, but owing to it being unnecessary to enter the market to any great extent the situaion is not as strong as it otherwise would be from a distributor point of view.

Steel works in the United States report an improvement, a gain in output capacity being reported. Although slight up to the present it is taken as an indication that a betterment may be looked for during the following fall months. Consumers of steel in a number of lines are showing more concern over their ability to secure continuous supplies from the mills, and apparently the biggest handicap is the rail strike situation, and transportation difficulties. Average local prices are the following:

Common bar iron, 100 lbs.	3 15
Refined iron	4 65
Irish finish machinery steel	3 20
Mild steel	3 15
Single reeled machinery steel	5 25
Band steel	3 50
Spring steel	4 75
Sleighshoe steel	3 15
Tire steel	3 35
Harrow tooth steel	3 30
Toe caulk steel	4 05
Mining tool steel, per lb.	0 20½
Black Diamond tool and cast steel, per lb.	0 20½

NOTE—Refined iron is approximately $1.50 per 100 lbs. over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs. extra.

FURTHER RISE EXPECTED IN GALVANIZED SHEETS

Montreal.

With a very firm undertone continuing in the sheet markets, prices locally remain unchanged. The firming tendency in Southern producing centres, wh prices generally were advanced, has not yet affected the local market insofar as prices are concerned, although certain distributors anticipate a change in an upward direction in the not far distant future. Having a more distinct bearing on the local situation in this regard is the condition of stocks. Available supplies are none too ample, and although recent shipments from overseas have arrived, it is felt that a more active demand during the coming weeks will retain stocks at a comparatively low level. This question has been on the minds of local distributors for some time past and while it was thought that ample cargoes would reach here during the fall months from overseas, this point is again receiving much attention. Following are present prices which are very firm:

BLACK SHEETS—		
10 gauge, base	4 00	4 50
12 gauge	4 10	4 60
14 gauge	4 20	4 70
16 gauge	4 30	4 80
18-20 gauge	4 55	5 05
22-24 gauge	4 60	5 20
26 gauge	4 65	5 25
28 gauge	4 75	5 35

Sheets, 36" wide, 10c. per 100 lbs. extra.

GALVANIZED SHEETS—		
Queen's Head—		
28 gauge	7 25	7 50
26 gauge	7 00	7 25
24 gauge	6 40	6 65
22 gauge	6 05	6 30
18-20 gauge	5 35	5 60
Other Brands—		
10¾	7 00	7 25
28 U. S. gauge	6 60	6 85
26 U. S. gauge	6 30	6 55
24 gauge	6 15	6 40
22 gauge	6 15	6 25
16 gauge	5 85	6 10

Theses prices are for full bundles, an extra charge of from 25c to 35c is made for broken lots. Extra for sheets 3 ft. wide, 28 gauge and 10¾ oz., 20 cts. per 100 lbs. Further extra for sheets 4 ft. wide, according to gauge.

TIN PLATE—Coke	
20 x 28 x 100 lb. basis	12 50
20 x 28 IC, 112s	13 00
20 x 28 IX, 112s	15 00
20 x 28 IXX, 56s.	9 00
20 x 28 IXXX, 56s.	9 75
TERNE PLATE—	
20 x 28 IC, 112s.	14 00
CANADA PLATE—	
Dull, 52s	5 00
Dull, 60s	5 10
Blued ..2s ..5	5 25
Blued 60s	5 35
Welsh, polished, 52s	7 00
Welsh, polished, 60s	7 25
Galvanized, 52s.	7 25
Galvanized, 60s	7 75

IMPROVED TONE IN MOST INGOT METALS

Montreal.

After a period when the summer dullness was evident in the ingot metal markets, an almost general improvement is noted and some metals are now showing a decidedly firmer tendency. Copper and spelter are the strongest metals on the list, the latter touching a new high point in East St. Louis. Antimony, which has been in a dull position for some weeks past, now has a much improved market tone.

TIN.—There seems to be a waiting attitude in this market to ascertain how statistics shape up for the month. Although tin has recently shown a reaction the future outlook continues more promising. The London market is weak, but an improvement is looked fo: in the near future. Quotation unchanged at 36 cents.

COPPER.—The London market is firmer and there is a temporary scarcity reported in the U. S. A. Producers are holding firm, and the market generally presents a strong outlook. Quotation on electro remains at 17¾ cts., casting at 17½ cts.

LEAD.—The lead market remains firm. Although the London market is a shade easier at present, this tendency is not sufficient to materially affect the market in general. There is, however, said to be nothing to indicate any great advance, and a steady market is looked for. Local price 6¾ cents.

SPELTER.—Spelter is about the strongest metal on the list, East St. Louis touching a new high point. From all indications it would appear that still higher prices may be reached. The English market is also in a firm position. Price locally is a little higher at 8¾ cents.

ANTIMONY.—After a period of dullness this metal is now reported with a decidedly firmer tone. New York stocks are reduced considerably, doubtless in view of the change in tariff. The European market is little changed, but it is generally recognized that Chinese metal is at too low a level. Chinese is quoted at 6½ cents, high grade English at 7½ cents.

ALUMINUM.—Aluminum is still in a dull position, with quotations unchanged at 24 cents.

Toronto Markets

TORONTO, September 13.—Many changes of an upward nature appear on the current sanitary and heating markets. Price developments attract special attention for this reason. Boiler tubes, both cast and malleable pipe fittings, range boilers, pig iron, galvanized sheets, blue-annealed and black sheets, also various galvanized products such as steel sinks, and wash boilers, are all included in the list of higher prices. That a similar upward change is pending on eavestrough and conductor pipe is rumored, but no development of this nature has, as yet, taken place. Brass compression goods are also described as very firm, production costs having recently advanced approximately five per cent. The only price reduction is a fractional decline on cement per barrel in carload lots.

UPWARD REVISION IN PIPE FITTING PRICES

Toronto.

Advances varying in extent from five to twenty-five per cent. have been made on pipe fittings, both cast and malleable. Following the change to higher price levels on wrought nipples and couplings two weeks ago, a similar upward change is noted on cast iron fittings, plugs, bushings and unions. The discount on the malleable fittings list, which was adopted last June, is also changed, there no longer being a uniform discount for the three classes. Effective September 1, Class A is quoted at less sixty per cent., and classes B and C at less 70 per cent. Following are the revised quotations which are in line with the general inflation in manufactured iron and steel products, this movement being attributed to higher production costs through increased prices on basic elements.

PIPE FITTINGS—	Per Cent.
Cast iron fittings	27
Plugs, cast iron	27
Do., solid	27
Do., countersunk	27
Bushings, malleable	30
Do., cast	30
Unions, ⅛ in. to 2 in	45
Do., ¼ in., 2½ to 4 in.	45
Flanged unions, std.	27
Flanged Fittings	30
Dart unions, blk., ⅛ to 2 in.	34
Do., ¼ in., 2½ to 4 in.	23
Do., galvd., add to black	30
Nipples, blk., and galvd. ⅛ to 4 in. close and short	55
Do., 4½ in. and larger	45
Do., long, ⅛ in. to 4 in.	60
Do., 4½ in. and larger	50
Do., running thread	35
Couplings, 4 in. and under	25
Do., 4½ in. and larger	5

MALLEABLE FITTINGS—
New piece list, effective June 1, 1922.
Discounts, Class A, less 60 per cent.
Discounts, Class B, less 70 per cent.
Discounts, Class C, less 70 per cent.

INCREASE PENDING IN EAVESTROUGH PRICES

Toronto.

An increase in prices of eavestrough, conductor pipe and conductor elbows to the extent of approximately ten per cent. is predicted in many quarters. This development is considered imminent, and it is stated that an announcement is being contemplated which may result in higher quotations on these products in the near future. The reason for such a change is attributed to the higher prices of raw materials such as flat galvanized sheets, the recent strength in this direction having been apparent throughout the galvanized market. Following are the present unchanged list and discounts:

TROUGH (EAVE)—
O. G. Square Bead—

Per 100 ft.		Per 100 ft.	
8 inch	$15 90	15 inch	$28 80
10 inch	17 70	18 inch	36 80
12 inch	21 20	inch	

O. G. Round and Half Round

8 inch	16 90	15 inch	29 80
10 inch	18 70	18 inch	37 80
12 inch	22 20		

Less 70 and 10 per cent.

PIPE (CONDUCTOR)—
Plain, round or corrugated.

Per 100 ft. in 10 ft. lengths.	
2 in., in 10 ft. lengths, list	18 40
3 in., in 10 ft. lengths, list	22 30
4 in., in 10 ft. lengths, list	29 60
5 in., in 10 ft. lengths, list	40 00
6 in., in 10 ft. lengths	49 00

Less 70-10 per cent.

ELBOWS (CONDUCTOR)—

2 inch, list	5 25
3 inch, list	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00

Less 60 per cent.

REVISED DISCOUNTS ON GALVANIZED PRODUCTS

Toronto.

Revised discounts are announced on galvanized wares, this change affecting such products as galvanized steel sinks, painted steel sinks, both light and heavy galvanized pails and tubs, and also garbage pails. The new discount quotation is ten per cent.

NEW NET PRICES ON MALLEABLE FITTINGS

Toronto.

In some cases jobbers are quoting net prices on malleable pipe fittings, instead of the list and discounts. The current revisions, therefore, bring the following prices into effect:

MALLEABLE FITTINGS— Per lb.	Blk.	Glvd.
Class B	0 23	0 32
Class C	0 16	0 23

MARKED PRICE ADVANCES ON SHEET PRODUCT

Toronto.

Another advance is now in effect on galvanized sheets, also black and blue annealed sheets. The increases are of varying extent, being a forty-cent advance on galvanized, a fifty-cent climb in black sheet prices, while blue-annealed are higher by twenty-five cents per cwt. These developments represent the tone of the market which has been gaining momentum each succeeding week. The changes on the domestic market were preceded by the announcement of higher price levels in southern primary centres, and are attributed to the rising cost of production. It is pointed out that fuel, and labor costs have advanced while the American railroad situation is not improving to any great extent. The settlement of the coal strikes has no immediate effect on the steel industry, as some time must necessarily elapse before the volume of output can be expected to reach full capacity and keep pace with the current demand. Following are the revised quotations:

BLUE ANNEALED SHEETS—	
10 gauge, base	4 25
12 gauge	4 30
14 gauge	4 35
16 gauge	4 40
BLACK SHEETS—	
18-20 gauge	5 30
22-24 gauge	5 35
26 gauge	5 40
28 gauge	5 50

A charge of 25c per 100 lbs. is made for less than case lots. An extra 10c per 100 lbs. is also charged on sheets 26 in. wide.

	Queen's Head
28 gauge	7 75
26 gauge	7 50
24 gauge	6 90
22 gauge	6 55
18 and 20 gauge	6 05

	Premier and	Apollo
10¾ oz.	7 15	7 65
U. S. 28, base	6 75	7 25
U. S. 26	6 45	6 95
22 and 24	6 30	6 80
18 and 20	6 15	6 65
16	6 00	6 50
12 and 14	5 85	6 35

An extra is now charged on galvanized sheets, 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20 cents per 100 pounds. Other gauges show no change for different widths.

An extra 40 cents per 100 lbs., is charged for Keystone and Premier brands copper-bearing sheets.

FIRMER MARKET TONE IN COMPRESSION GOODS

Toronto.

Although no change in quotations affecting brass compression goods has been anounced, distributors of these products state that a slight change in an upward direction would not be surprising. Such a development to the extent of around five per cent. was stated as possible in view of recent increases in basic materials. No step in this direction has yet materialized, and the following unchanged discounts are at present in effect:

VALVES—	Per cent.
Compression work, standard	45
Fuller work, standard	30
Bath cocks, compression	41
Do., Fuller	25
Flatway stop and wastecocks, stand'd.	54
Roundway stop and waste cocks std.	46
Brass steam cocks, standard ½" to 2"	50
Do., 2½" to 3"	43
Globe, angle and check valves, std.	25
Mueller globe, angle and check	25
Mueller composition disc steam valves	33
J.M.T. valves, screwed	20|10
J.M.T. gate valves, screwed	25|10
Jenkins gate or straightway, screwed	25|10
Jenkins globe, screwed	19|10
Radiator valves, standard	58
Do., removable disc	58
Emco, J. D., rad. valves, screwed	33
Emco swing check, ⅜" and ½"	40
Do., other sizes	33
Webster gate valves, screwed	33
Emco globe valves, std.	25
Emco globe valves, J.D., screwed	33
Basin Cocks—	
No. 0 and 1 Fuller pattern	30
Quick opening No. 3633	50
No. 3623, plain or index handle	34

UPWARD REVISION IN BOILER TUBE PRICES

Toronto.

Revised quotations on boiler tubes are now in effect from September 1, the en-

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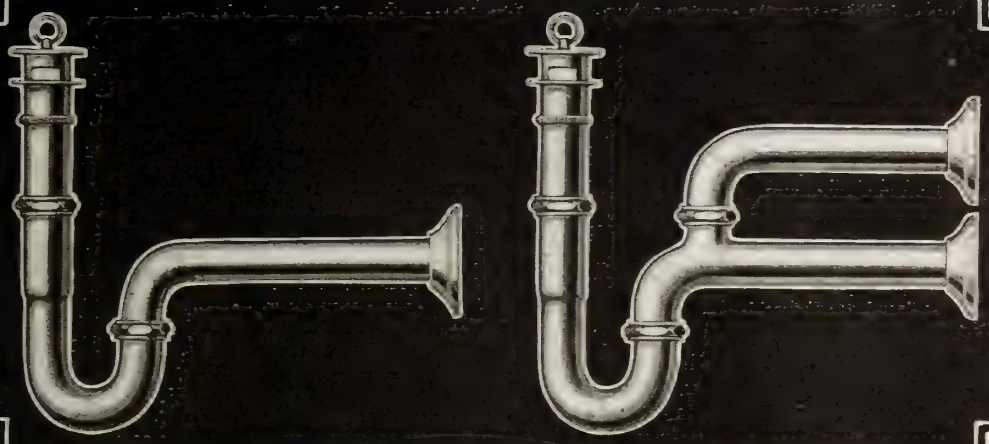

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TORONTO MARKETS

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tire list, both seamless and lapweld, being on a higher level. The current advances are attributed to recent increases in production costs, such as the higher prices on coal and foundry iron, the advance in wages at steel mills, and the difficulty in securing transportation from production centres. For some time past, distributors assert that seamless boiler tubes have been selling below nominal values, and with a recovery in these markets now considered imminent, the new quotations govern the situation. Following are revised prices:

BOILER TUBES—

	Seamless	Lapweld
¼ inch	19 00	....
1 inch	20 00	....
1¼ inch	22 00	....
1½ inch	24 00	....
1¾ inch	24 00	23 00
2 inch	22 00	19 00
2¼ inch	26 00	....
2½ inch	26 00	22 00
3 inch	32 00	26 00
3¼ inch	36 00	33 00
3½ inch	38 00	32 00
4 inch	55 00	38 00

MOVEMENT OF ENAMEL WARE FAIRLY BRISK

Toronto.

While the current movement of enamelware products is stated to be fairly brisk, and seasonal satisfaction should be in evidence at this time of the year, some rumors of slight price shading in certain quarters are still coming to hand. On the other hand, distributors are striving to maintain unchanged levels, a firmer undertone having crept into manufacturing circles with the recent marked advances in foundry iron and fuel costs. Following are average prevailing prices and discounts:

ENAMELED WARE—

Enameled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.	51 40
Do., 5½ ft.	57 10
Lavatories—	
17x10" Apron F139 or P4045	15 30
18x24" Apron F154 or P3845 or P3847	23 60
18x21" Apron F169 or P4205	17 60
18x21" Roll Rim, F197, F199 or P4655-6	15 40
17x19" Roll Rim, F241 or P4345	12 60
Sinks, Roll Rim, 16x24 in.	18 10
Do., 18 x 30 in.	23 00
Do., 20 x 30 in.	24 70

Sinks, Flat Rim—	3 only	2 only	1 only
16x24	$7 60	$7 70	$7 80
18x30	8 50	8 60	8 70
20x30	9 70	9 80	9 90

Above prices, list, less 33 1-3 per cent.

All steel enamel baths, 4 and 4½ ft.	$14 00
Do., 5 ft.	15 00
Do., 5½ ft.	16 75

Steel bath quotations are net.

RANGE BOILERS ON NEW DISCOUNT LEVELS

Toronto.

Through a revision in discounts, prices on range boilers are approximately ten per cent higher. This development reflects the current changes in the galvanized sheet markets, which has recently recorded several advances. The new discounts on range boilers are 45 per cent. on extra heavy, compared with former levels of fifty and forty respectively. These discounts apply to the list adopted in January, 1922. While the current movement is described as moderate, manufacturers point towards the rising production costs and higher raw material prices, these factors creating a firmer undertone to the market.

RANGE BOILERS—

Size.	List Price.
5-gallon	$13 50
12 to 15 gallon	14 00
18-gallon	15 00
25-gallon	16 50
30-gallon	17 50
35-gallon	20 50
40-gallon	22 75
52-gallon	38 00
66-gallon	60 75
82-gallon	74 00
100-gallon	103 00
120-gallon	117 00
144-gallon	164 00
168-gallon	187 00
192-gallon	210 00

Discounts, Standard weight, 45 per cent.
Extra heavy, 35 per cent.

MODERATE CALL FOR CLOSET REQUIREMENTS

Toronto.

In closet outfits and fixtures, as in other enameled ware lines, some slight unsettlement is reported. Rumors of price shading for quantity purchases again prevail, but the firmer raw material market has tended to offset any development along these lines. In some quarters, it is stated that the advisability of higher quotations as a means of placing the market generally upon an improved basis is being contemplated. The demand for closet combinations and fixtures is easing off slightly as the colder weather approaches, but building activity is keeping remarkably well for this season of the year, with its consequent effect upon the current movement of these goods. No changes have been made in the following prices:

Closet, standard outfit, oak	26 00
Do., with post hinge seat	26 20
Do., mahogany Vitro or Pussyfoot with mahogany post hinge seat and cover	28 45
Do., vitreous china, with oak post hinge seat and cover	28 45
Do., vitreous china, with mahogany post hinge seat and cover	28 70
Do., white Vitro or Pussyfoot, with oak post hinge seat and cover	28 45
Do., white Vitro or Pussyfoot with mahogany post hinge, seat and cover	28 70
Do., enamelled iron tank with oak post hinge seat and cover	28 45
Do., enamelled iron tank with mahogany post hinge seat and cover	28 70
Additions or reductions to above:	
Add for reverse trap bowl	1 50
Add for syphon jet bowl	7 00
For ⅜ in. valve on supply pipe	1 50
Deduct for supply pipe	60
Deduct for floor flange and bolts	0 60
CLOSET BOWLS—	
Washdown bowl with spud	10 60
Reverse trap bowl, with spud	12 10
Syphon jet bowl, with spud	17 00
"Richelieu" bowl	10 50
CLOSET TANKS, low down, Oak, Vitro or Pussyfoot tank, with fittings, less seat	13 20
White Vitro or Pussyfoot tank with fittings, flush elbow and supply	15 65
Vitreous china tank with fittings, flush elbow and supply	18 00
Enamelled iron tank with fittings, flush elbow and supply	18 00
CLOSET SEATS—	
Oak post hinke seat and cover	3 85
Oak wood strip seat and cover	3 50
Mahogany finish post hinge seat and cover	4 05
Oak Richelieu seat and cover	3 50

BRISK ACTIVITY IN RADIATORS AND BOILERS

Toronto.

Current trade in radiators and boilers is stated to be on a surprisingly good basis. The brisk activity in building circles has kept up in fair volume during the fall period thus reflecting in the movement of these products. The approach of cooler weather has also stimulated the desire for heating apparatus, while the further developments in the raw material market and higher prices on foundry iron, result in additional strength in production circles. No change has been announced in quotations, the following list prices and discounts prevailing on the local markets:

RADIATORS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60.

Discount on 2, 3, 4 and 5 column standard sizes, 59% for water and 60% for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 51% for water and 52% for steam.

Discounts on 1-column hospital size, water 33%; steam 34%.

Wall radiators—5 ft. $1.15; 6 ft. $1.10; 7 ft. $1.05; 9 ft. $1.05; 12 ft., $1.05. Discount 56%.

BOILERS—

Water:

Round 64% off list. Square 15%. off list.

Steam:

Round 28% off list; Square 15%. off list.

SOIL PIPE AND FITTINGS IN SEASONAL TRADE

Toronto.

A good volume of trade in soil pipe and fittings is reported by manufacturers and distributors, the recent market developments adding further strength to these products. In spite of the lateness of the season, building operations are continuing in a surprising manner, and this reflects upon the current demand for soil pipe. Prices are unchanged at the discounts quoted during the past few weeks, with the continued upward trend of raw material costs, resulting in a firm undertone to the market. Current discounts follow:

SOIL PIPE—

2 inch	Less 33 1-3%
3 inch	Less 33 1-3%
4 inch	Less 33 1-3%
5 and 6 inch	Less 33 1-3%
8 inch	net
FITTINGS—	
2 to 6 inch	Less 45 per cent.
8 inch	net

PIG IRON PRICE AT INCREASED LEVELS

Toronto.

Practically all Canadian pig iron is off the market temporarily, insofar as new orders are concerned. The nominal local quotation is $39.30, but no business is being done at this figure. Practically the only iron available at the moment is Summerlee, and this stock is reported limited. It is expected that Carron iron will be offered at an early date. The consumption of the foundries at this time is only nominal. Most firms bought heavily some weeks ago, as they were protected to some extent on the advancing market, producers caring for their customers who placed orders well in advance. Thus there is very little actual demand for pig iron at present.

COPPER GOODS STILL ON STEADY BASIS

Toronto.

The market for brass and copper goods has shown no appreciable development

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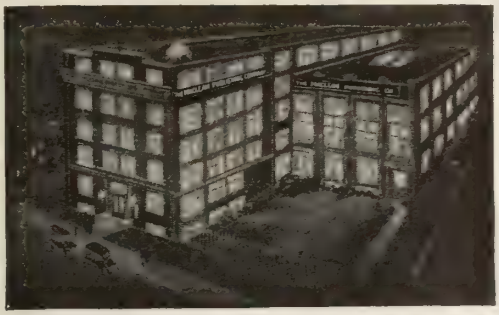

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TORONTO MARKETS
(Continued from page 44)

as regards volume, but it is noted that the virgin metals retain a strong position and the undertone of sheets, rods and tubing is described as firm. These products maintain a steady basis with quotations unchanged at the recently revised levels. While current trade is stated to be moderate in some quarters other distributors point out that the aggregate is entirely satisfactory for this time of the year, although individual orders are mainly in small quantities. Following are prevailing prices:

BRASS—	
Sheets base, per lb.	0 23
Rods, base, per lb.	0 20
Tubing, base, per lb.	0 28
COPPER—	
Rods, base, per lb.	0 28
Soft sheets, plain, 1 oz. and heavier, lb.	0 29
Do., plain tinned, 16 oz. and heavier, per lb.	0 36
Do., polished, and tinned, 16 oz. and heavier, lb.	0 41
Tubing	0 32

FRACTIONAL DECLINE IN CEMENT QUOTATIONS

Toronto.

A fractional reduction is now in effect on cement prices, the local quotation per barrel in carload lots having been lowered from $3.70 to $3.68. No variation is announced on other quantities, the quotations given below remaining in effect. The seasonal call for cement is described as falling off to some extent during recent weeks, but conditions are described as fair for this time of the year. Current prices follow:

CEMENT—	Toronto.
Car load lots.	
Per barrel, delivered	3 68
Less car lots.	
Per barrel, f.o.b. yard	4 40
Per barrel, delivered	4 60

Single bags, $1.15 each; 4 bags to barrel.
Extra charge of $1.50 per load on less than 24 bag lots.
Rebate of 20 cents for empty sacks.

LOOK FOR STEADIER PRICES ON SOLDERS

Toronto.

Lead and zinc products are considered steadier in price, with primary metals setting the usual precedent. Some minor fluctuations are looked for from time to time, but no further feature changes are anticipated unless unexpected developments materialize in virgin metals chiefly used in the production of these products. Lead goods generally, and particularly solder grades are holding at the recently revised levels. The general expression indicates that current markets are comparatively stable, and a more stabilized trend is looked for in certain quarters.

LEAD AND ZINC GOODS—	
Lead pipe, list, per lb.	0 13
Lead, waste pipe, list, per lb.	0 14
Do., over 8 in., list, per lb.	0 15

Lead pipe is subject to a discount of ten per cent.
Lead traps and bends less, 15 per cent.
Lead sheets, 4 to 6 lbs., sq. ft. in rolls, lb. 20 c.
Cut sheets, ½c to ¾c lb. extra and cut sheets to size, 1c lb. extra.

Solder wire, per lb.	0 30
Do., commercial lb.	0 22½
Do., strictly, lb.	0 21
Do., guaranteed, lb.	0 24
Do., wiping, lb.	0 21
Zinc sheets, per lb.	0 09 — 0 10

REVISED LIST ON WROUGHT PIPING

Toronto.

The new list on wrought piping, which was referred to in the last issue of Sanitary Engineer, is quoted below. In this connection, it is pointed out by manufacturers, that not only have production costs in the steel industry recently attained correspondingly higher levels, but that wages in certain sections have been increased by producers to the extent of around twenty per cent. Even with a settlement of the coal strike, fuel prices remain high, and no expectation of easier production costs in this direction exist, at least for some time. Owing to the unusual conditions produced in the industry by the combined effect of the recent coal and rail strikes, a considerable period must elapse before market conditions will again reach normal. Following is the revised pipe list No. 56:

WROUGHT PIPE

Price List No. 56 August 23, 1922

Standard Buttweld Pipe S/C

Per 100 feet

Size	Steel Blk	Steel Galv.	Gen. Wrot. Blk.	Iron Galv.
⅛ in.	6.00	8.00		
¼ in.	3.96	6.00	7.20	9.30
⅜ in.	3.96	6.00	7.20	9.30
½ in.	5.02	6.55	7.31	8.93
¾ in.	6 10	7.82	8.86	10.70
1 in.	8.50	11.22	12.58	15.30
1 ¼ in.	11.50	15.18	17.02	20.70
1½ in.	13.75	18.15	20.35	24.75
2 in.	18.50	24.42	27.38	33.30
2½ in.	29.25	38.61		
3 in.	38.25	50.49		
3½ in.	49.68	64.40		
4 in.	58.86	76.30		

Standard Lapweld Pipe S/C

Per 100 feet

Size	Steel Blk.	Steel Galv.	Gen. Wrot. Blk.	Iron Galv.
2 in.	22.20	27.75	31.08	37.00
2½ in.	32.76	41.54	46.80	56.16
3 in.	42.84	54.32	61.20	73.44
3½ in.	50.60	66.24	72.68	89.24
4 in.	59.95	78.84	86.11	105.73
4½ in.	68.58	87.63	1.04	1.24
5 in.	79.92	102.10	1.21	1.45
6 in.	1.04	1.32	1.57	1.88
7 in.	1.38	1.79	2.02	2.45
8L in.	1.45	1.88	2.13	2.58
8 in.	1.67	2.16	2.45	2.97
9 in.	2.04	2.62	2.97	3.59
10L in.	1.89	2.43	2.75	3.33
10 in.	2.43	3.13	3.54	4.28

SEASONAL REVIVAL IN TIN PLATE TRADE

Toronto.

While a distinct falling off in the tin plate trade, and a falling off in the volume of new business was noticeable a few weeks ago, this condition has now been reversed and a seasonal revival is considered at hand. Large consumers are again coming into the market and this has served to considerably firm up the current market tone at the following unchanged local price levels:

PLATES, CANADA—	Per box
Ordinary, 52 sheets	4 90
Dull, 60 sheets	5 00
Blued and oiled, boxes 52's	5 20
Do., boxes, 60's	5 30
WELSH CANADA PLATES—	
Cold polished, 18 x 24, 52's	6 5
Cold Polished, 18 x 24, 60's	6 50
PLATES, COKE TIN—	
IC, 20 x 28, 112 sheets	12 50
IX, 20 x 28, 112 sheets	15 00
IX, 20 x 28, 56 sheets	8 50
PLATES, CHARCOAL TIN—	
IX, 20 x 28, 112 sheets	10 00
IXX, 20 x 28, 56 sheets	12 00
PLATES, TERNE—	
IC, 14 x 20, 112 sheets	12 00

BRISK SEASONAL CALL FOR CORRUGATED SHEETS

Toronto.

While there remains a brisk seasonal call for corrugated sheets, a variety of elements are apparent in this market. The improvement recently noted has failed to remain for any length of time due to the fact that a certain amount of damaged corrugated sheets is being offered in certain quarters. Therefore, while a firmer tendency was developing on the one hand due to the strength of flat galvanized sheets, the resumption of slightly easier levels in certain quarters again became apparent to some extent on the other hand as a result of these conditions. As already noted, however, the movement of corrugated sheets at this season is usually brisk, and distributors point to this factor as serving to maintain the following unchanged current price levels:

CORRUGATED SHEETS—	Per 100 Sq. Ft.
No. 28 gauge	$6 50
No. 26 gauge	7 00
No. 26, U. S. gauge	8 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50

Less 10 per cent.
Lighter than 24 gauge and wider than 27 inches, 75c. per square extra.

PIG IRON SCARCITY MAY BOOST SCRAP

Toronto.

Scrap metal markets as yet show little activity but continuation of the coal scarcity and rail strike would certainly have the effect of boosting the price of cast iron. This at the present time is exceedingly scarce. Very little buying of waste materials is being done in any department at the present time, however, and the following dealers' local average buying prices for fairly large quantities, show practically no change:

SCRAP MATERIALS—		
Scrap Iron		
Gross Tons—		
Heavy melting steel (Hamilton)	$13 00	$13 50
Borings and turnings	6 00	7 00
Rerolling rails	12 00	13 00
Scrap pipe	5 00	6 00
No. 1 railroad wrought	10 25	11 25
Steel turnings (Hamilton)	9 75	10 25
Agricultural malleable	12 00	13 00
Railroad malleable	13 00	14 00
Net tons—		
No. 1 cast	18 00	19 00
Stove plate	15 00	16 00
Grate bars	11 00	11 50
Standard car wheels	14 00	15 00
Scrap Metals		
Heavy copper and wire	10 75	11 25
Light copper	9 25	9 75
No. 1 composition	9 00	9 50
No. 1 comp. turnings	7 25	7 50
Light brass	3 50	4 50
Heavy yellow brass	5 50	6 50
Heavy Lead	5 00	5 50
Tea lead	2 75	3 50
Scrap zinc	4 25	4 50
Scrap Rubber.		
Boots and shoes	2 00	....
Lumbermen's rubber boots	1 25	1 50
Auto tires	0 40	0 50
Solid tires	0 60	1 00

STOVE AND FURNACE PRICES STILL FIRM

Toronto.

Manufacturers of stoves and ranges, in outlining the market situation, state that although the tendency is upward there is no present indication of a revision in prices. Production costs have

(Continued on page 48)

REMEDY THAT SLUGGISH SYSTEM

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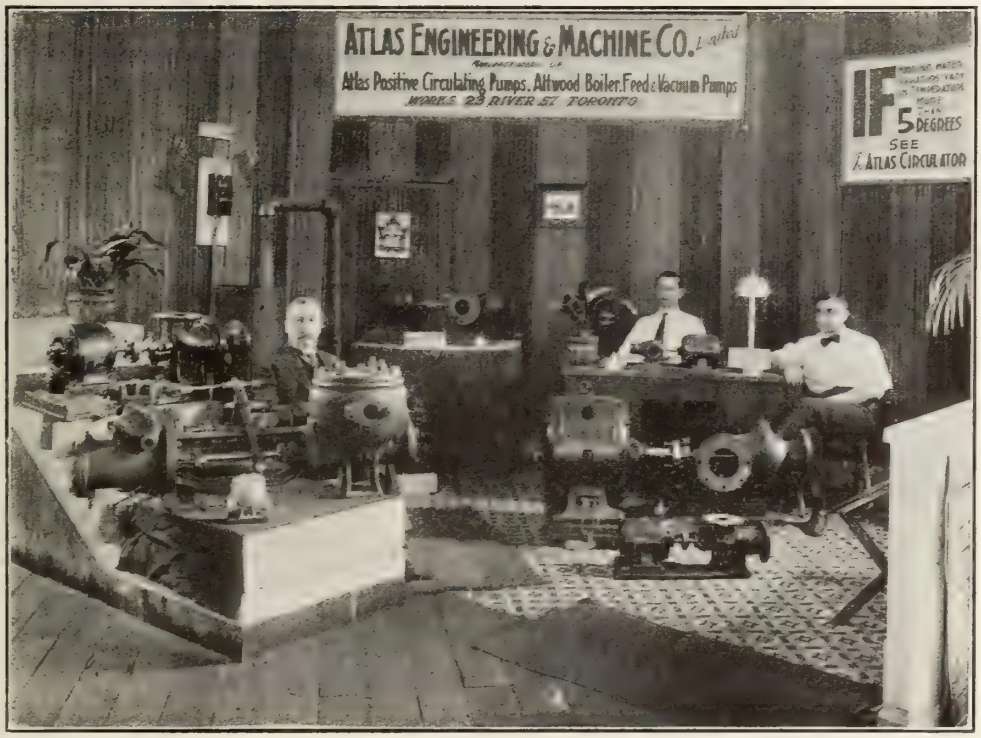
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Did You See Our Exhibit at the C.N.E. 1922?

LET US QUOTE ON YOUR REQUIREMENTS:—

The Atlas Engineering and Machine Co., Ltd.

——TORONTO——

TORONTO MARKETS

(Continued from page 46)

undoubtedly increased, but in view of the fact that fall trade will shortly commence, advanced quotations will be withheld until it is found that they are absolutely necessary. Apart from the rising costs of raw materials there is now the question of coal shortage and the rail strike which must not be overlooked. These have now reached serious proportions in the United States, and while not yet keenly felt on domestic markets, the situation is certainly well worth watching.

Bookings for fall requirements have been comparatively small and reports from merchants throughout the country show that a considerable quantity of stoves have been carried over from last year. However this does not indicate that fall business will not reach favorable proportions, in fact manufacturers anticipate an active season on both lines.

LACK OF AGGRESSIVE TRADING IN METALS

Toronto.

There has been a noticeable slack feeling in the ingot metal markets, but price developments are restricted, especially on domestic centres, due to the lack of aggressive activity at this season. Copper is generally firm, with the tin market almost reaching a dull atmosphere, owing to the increase in the visible supply. Lead, however, continues firm, and spelter is considered to be in a strong position.

Winnipeg Markets

WINNIPEG, September 13.—Prices on sanitary and heating materials continue to fluctuate in both directions. The majority of current developments however are in the nature of advances, higher levels now being in effect on soil pipe and fittings, and lead sheets. Building activity refects on numerous plumbing and steam fitting materials, including eavestrough and conductor pipe, bathroom fixtures, radiators and boilers. Galvanized range boilers are in good demand and the market is ruling steady. Higher quotations are also in effect on pipe fittings. Boiler tubes, on account of the firmer tone of the steel market have moved upward. Closet seats show a reduction as well as steel bathtubs. Ideal basin and bath wastes, fenco traps and radiator air valves show slight reductions.

GALVANIZED RANGE BOILERS IN GOOD DEMAND

Winnipeg.

Galvanized range boilers are reported to be in fairly good demand, as activities in building circles continue splendid. The undertone of these products is reported firm owing to the strong tone in galvanized sheets and other raw materials. The market is steady at present quotations.

RANGE BOILERS—

Size	Price
30 Gallons	9 00
35 Gallons	12 50
46 Gallons	13 75
52 Gallons	22 60
66 Gallons	35 00
82 Gallons	42 50
100 Gallons	60 00
120 Gallons	65 00

UPWARD CHANGE IN PIPE FITTING COSTS

Winnipeg.

Higher quotations are now in effect on pipe fittings. Close and short from four inch are quoted at fifty and five per cent., four and a half and larger at forty and five per cent. Long four inch and smaller—fifty five and five per cent. Four and a half and larger—forty and five per cent.

THE LEAD MARKET MAINTAINS A FIRM TONE

Winnipeg.

The tone of the lead market is reported firm. Bar lead is quoted at eight and three quarter cents per pound, with pig lead at eight and one-half cents per pound.

SEASONABLE TRADE IN TROUGH AND PIPE

Winnipeg.

Current trade in eavestrough, conductor pipe and sundry lines continues in seasonable proportions. With the harvest season well in hand there is usually a falling off in demand but with the approach of fall an improvement is expected. Quotations are:

EAVESTROUGH—

O. G. 8 inch per 100 ft.	5 75
O. G. 10 inch per 100 ft.	6 38
O. G. 12 inch per 100 ft.	7 65
O. G. 15 inch per 100 ft.	10 63

CONDUCTOR PIPE, ROUND AND CORRUGATED—

Per 100 ft. 2 inch	7 02
Per 100 ft. 3 inch	8 08
Per 100 ft. 4 inch	10 20
Per 100 ft. 5 inch	14 45

DECLINE IN RADIATOR AIR VALVE PRICES

Winnipeg.

Thermodisk Syphon air valves show a decline of 20 cents and new quotations are now $1.80.

UPWARD TENDENCY IN BOILER TUBE PRICES

Winnipeg.

The strength of the steel industry is reflected in an advance in boiler tubes. New price revision is as follows:

BOILER TUBES—

1¾ inch per ft.	20c.
2 inch per ft.	22c.
2½ inch per foot	26c.
2½ inch per foot.	27c.
3 inch per foot.	36c.
3½ inch per foot.	42c.
4 inch per foot.	55c.
4½ inch per foot.	66c.

ADVANCED QUOTATIONS ON SOIL PIPE AND FITTINGS

Winnipeg.

Advanced prices are reported on both soil pipe and fittings, the extent of the increase varying on the different sizes. Two and three inch is quoted at less fifteen per cent. Four inch at twenty-five per cent. and five and six inch less twenty per cent. Fittings from two to three inch are now less thirty-five per cent. while four, five and six inch are less forty per cent. Trade in both pipe and fittings is quite satisfactory for this season of the year, and following are revised discounts.

SOIL PIPE—

2 and 3 inch	15%
4 inch	25%
5 and six inch	20%

FITTINGS—

2 and 3 inch	35%
4, 5 and six inch	40%

RADIATORS AND BOILERS IN GOOD DEMAND

Winnipeg.

The movement for radiators and boilers is seasonable, and is stimulated by the continuation of fairly extensive building operations. The number of dwelling houses under construction and the prospects of further building during the fall months is promising for the sale of these products. The firmness of the steel market reflects a firmer tone for these goods. Following are latest quotations:

RADIATORS—

16 inch	1 50
18 inch	1 40
20 inch	1 36
22 inch	1 30
26 inch	1 20
32 inch	1 10
38, 42, 44, 45 inch	1 00

Steam less 54 per cent. Hot Water, less 53 per cent.

WALL RADIATORS—

5 foot.	1 15
6 foot	1 10
7 foot.	1 05
9 foot.	1 05

Discount 50 per cent.

CLOSET SEATS SHOW REDUCTION IN PRICE

Winnipeg.

There is a slight reduction in closet seats. Oval wood strip seat is quoted at $3.15 with brands such as the Richelieu quoted at $2.85 and the Golden Oak at $3.80.

PRICES DECLINE ON STEEL BATH TUBS

Winnipeg.

There is a reduction on steel bath tubs of 50 cents. Five feet tubs are quoted at $14.00 and five feet six inch at $15.50.

FENCO TRAPS REDUCED

Winnipeg.

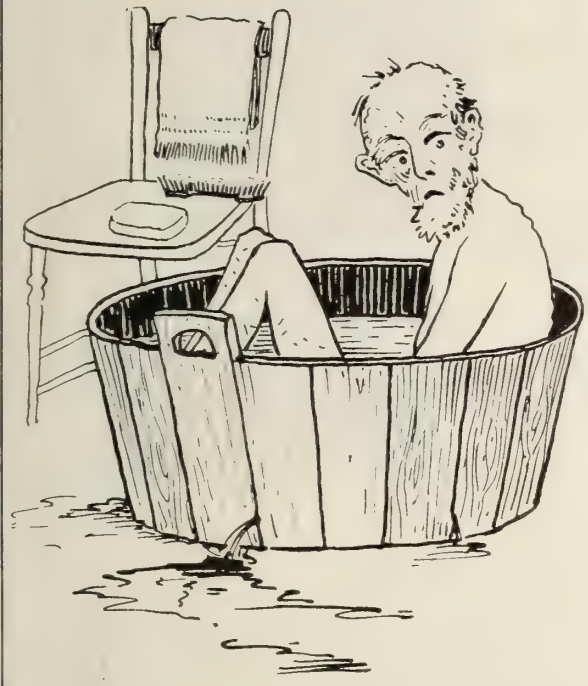
Fenco traps are reduced 25 cents and one and one-quarter inch are $3.25 with one and one half inch at $3.50.

IDEAL BASIN AND BATH WASTE REDUCED

Winnipeg.

There is a slight reduction on ideal basin and bath waste and new quotations are $5.60.

That Saturday Night Bath



In plenty of places, up and down this land of ours, you can't get a laugh with that old gag about Saturday night baths—In thousands of homes where they must haul water by hand from well or cistern for every purpose, taking a bath is an event, a ceremony. It is a solemn rite reserved for the leisured hours of the week end.

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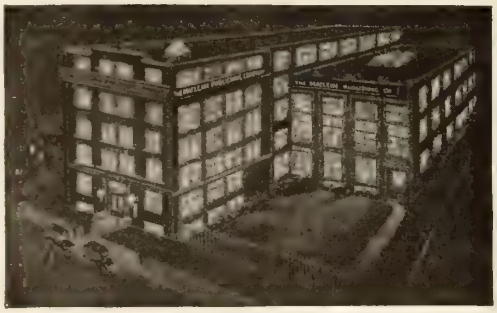

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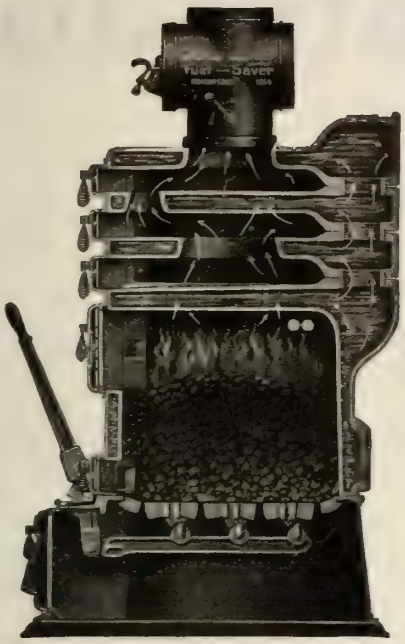

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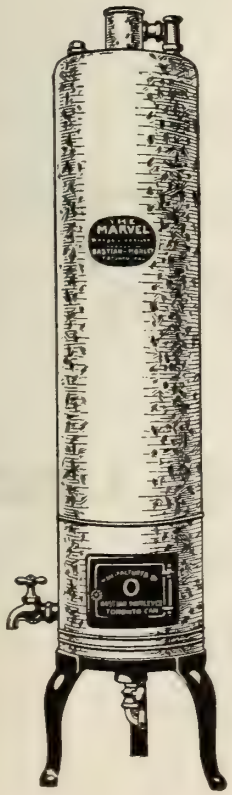

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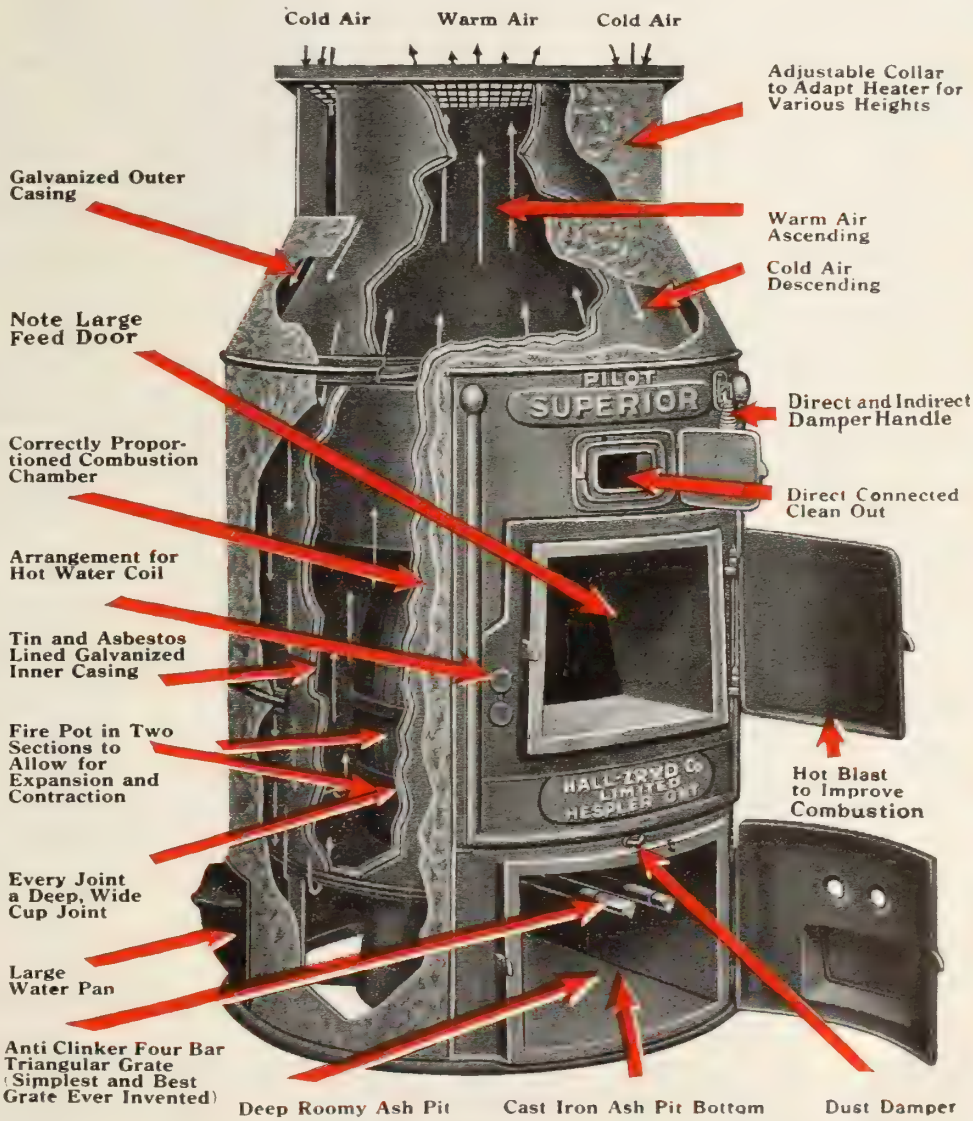
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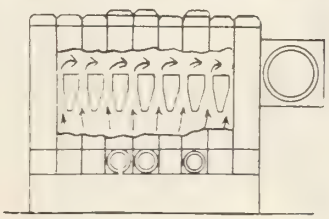

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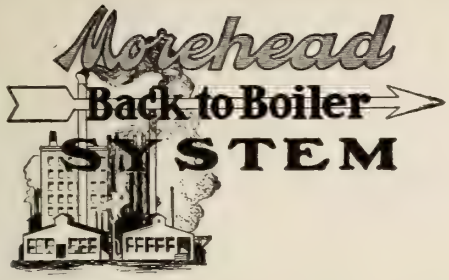

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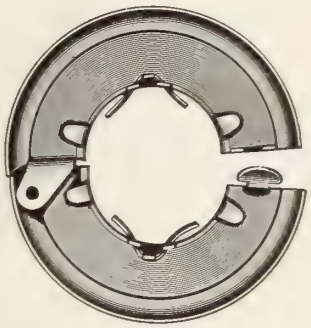

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The nature of cast iron defies the chemicals and acids that destroy wrought pipe in short order.

Write To-day for Prices and Full Particulars.

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Put up in two seconds; no bolts, screws or fastenings needed.

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The Parable of Paul the Plumber

PAUL
USED to be a grouch.
HE said the plumbing business
WAS a heluva business.
YOU'D hardly believe it now,
BUT one time he even
CROWNED
HIS wife with a plate of
MACARONI,
BECAUSE she let little Paul
PLAY with a pipe wrench.
HE used to say
THAT rather than let little Paul
GROW up to be a plumber,
HE'D poison him.
HE said he'd probably
LIVE through it
EVEN if little Paul
TURNED out to be a
TONSILITIS tenor,
WHO wore White Pants and used
PERFUME;
BUT a plumber—No!!

. . .

THEN one day he got hold of an
ALLPRISER
WHICH showed him that he was playing
SANTA CLAUS
TO his customers;
DOING their work below cost.
SO when he regained
CONSCIOUSNESS
HE pulled himself together
AND began to figure on
CONTRACTS
IN a way that showed him a nice profit.
ALLPRISER showed him how.
NOW he totes a wicked
BANK roll,
THINKS plumbing is O.K.
AND little Paul will be a plumber
TOO
WHEN he graduates from
TECH. School.

Moral:- Sometimes it's better to know Markets than Metal

K. B. ALLISON - ALLPRISER

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Approved

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Vitro for permanence and satisfaction - every time.

Galt Brass Company, Limited

GALT - CANADA

VITRO
NO TROUBLE
TANK

Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XVI. PUBLICATION OFFICE, TORONTO, OCTOBER 1, 1922 No. 19

"EMCO"

Adjustable Bath Supply

By the use of the "EMCO" A-967 Adjustable Bath Supply, only one joint is required at the floor and one at the cock. The joint at the cock is adjustable and is made absolutely water-tight by means of a cone rubber washer.

The ordinary brass to brass ground joint is perfect when a job is roughed in accurately, but, if only slightly out, it is certain to give trouble. Avoid that trouble by using the adjustable joint.

The above diagram shows how the joint is adjustable and how it is held steadfast in position by the screw collar. There is no possible chance of the supply pipe slipping out.

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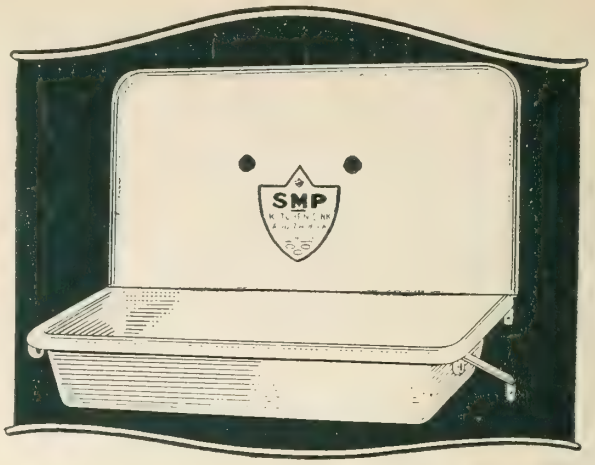
Empire Brass Mfg. Company, Limited

LONDON and TORONTO, Canada

Real Money in these Sinks



Have you seen the new **SMP** White Enameled Roll Rim Sink yet? If you haven't, do so at once. It is a sink which has long been needed in Canada, and is built to stand long years of wear and tear.

With thousands of new homes nearing completion and with others renovating and remodelling, the opportunities for installing sinks of this character are unlimited. Have you reaped any benefits? There is still time if you place your order at once.

SMP *White Enameled* ROLL RIM SINKS

are made of 16-gauge Rust-resisting Armco Iron over which are fused three coats of special enamel—smooth and glossy. Size 18 inches by 30 inches with a back 16 inches high. Weighs only 58 lbs! Half the weight of others, and very easy to put up. Each Roll Rim Sink is packed complete ready for shipment, including nickel-plated brass strainer, special adjustable brackets and couplings for iron and lead pipes. There is real money in these sinks. Place your order at once.

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THE SHEET METAL PRODUCTS Co. OF CANADA LIMITED

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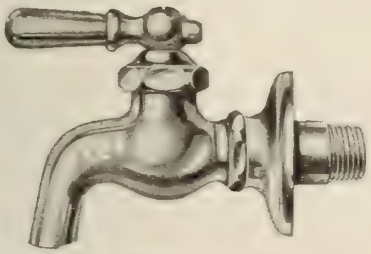


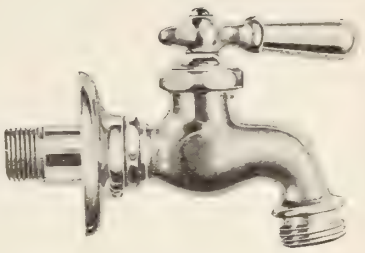
A-1000—Sink Bibb

All Standard Quick Opening Quaturn Plumbing material illustrated is constantly on hand for **shipment from stock.**

In this 20th Century Standardized line **working parts** are renewable and interchangeable throughout all styles—Bibbs, Basin Cocks, Bath Cocks.

Only working parts to be renewed—**the bodies stay installed permanently.**

Your jobber can supply these—if not **call our nearest sales office.**

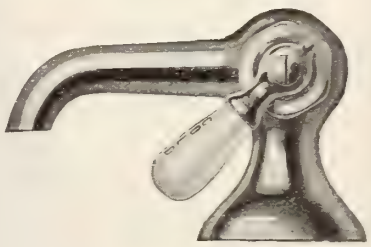


A-1002—Sink Bibb

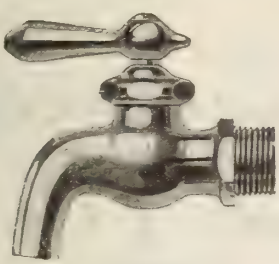
A-3200—Bath Cock

A-1900—Basin Cock

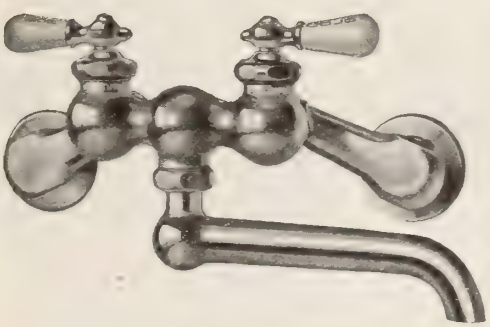
A-3500—Bath Cock



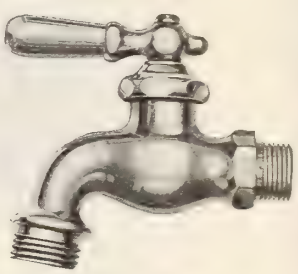
A-2000—Basin Cock



A-200—Bibb



A-100—Sink Mixing Faucet



A-202—Bibb

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The Hall Zryd Foundry Company, Limited

Manufacturers of Pilot Stoves, Ranges and Furnaces

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eems only a short time ago, but it's all of six years since I first built a Pilot Pipeless Furace. It was the first Pipeless Furnace ever built in Canada.

eople said then that I was—well, they didn't quite say "Crazy"—but that's what they meant.

urnace makers and Furnace dealers and the general public would not believe that you could eat a house comfortably without pipes and registers and cold air facings.

ut I knew better, and I built the first Pilot Pipeless and sold it, and built others and sold iem, and the purchasers were more than delighted because these were so cheap, so inexensive to instal, so economical of fuel and because they heated their homes so comfortably.

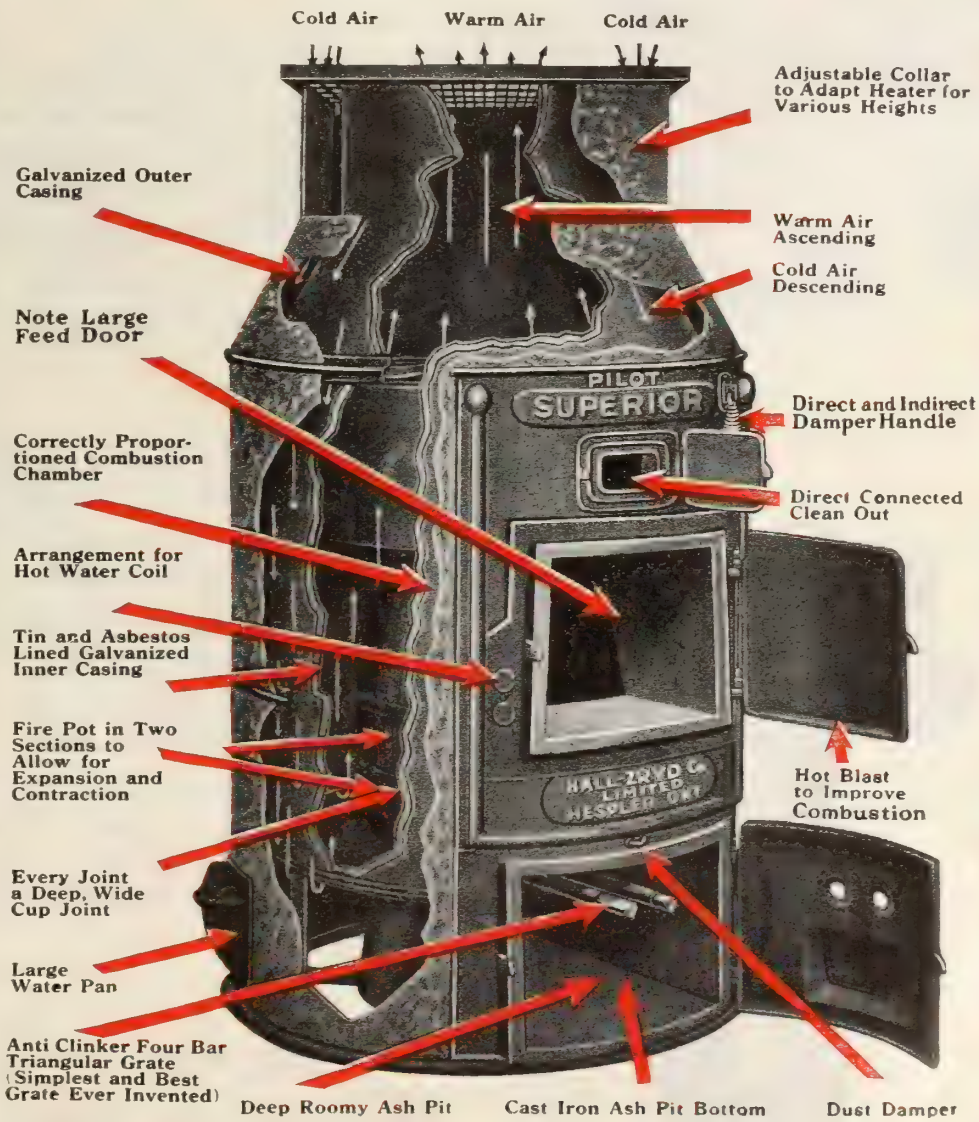
hen everybody started building Pipeless Furnaces.

o-day my Pilot Pipeless s still as far in the lead s it was in 1916. New conomies and refinements iggested by experience nd experiment make it).

assist you in a practical ay. My sales plan can't elp but get you business you will give it half a hance.

ote the illustration below; exnine the nineteen exclusive lling points; think of the treendous building boom now on the demand for new, better rnaces—the business you can t right in your own town if operly gone after—then just nd in your name and address d I'll forward to you a sales d agency plan that will more an interest you.

OTE:—*Even though you have, retofore, specialized in hot ater and steam equipment, it ill be to your advantage to ndle the Pilot Pipeless as well, r installation where the proct is sold on the Pipeless Idea.*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Warm Air
Cold Air
Adjustable Collar to Adapt Heater for Various Heights
Galvanized Outer Casing
Warm Air Ascending
Cold Air Descending
Note Large Feed Door
PILOT
SUPERIOR
Direct and Indirect Damper Handle
Correctly Proportioned Combustion Chamber
Direct Connected Clean Out
Arrangement for Hot Water Coil
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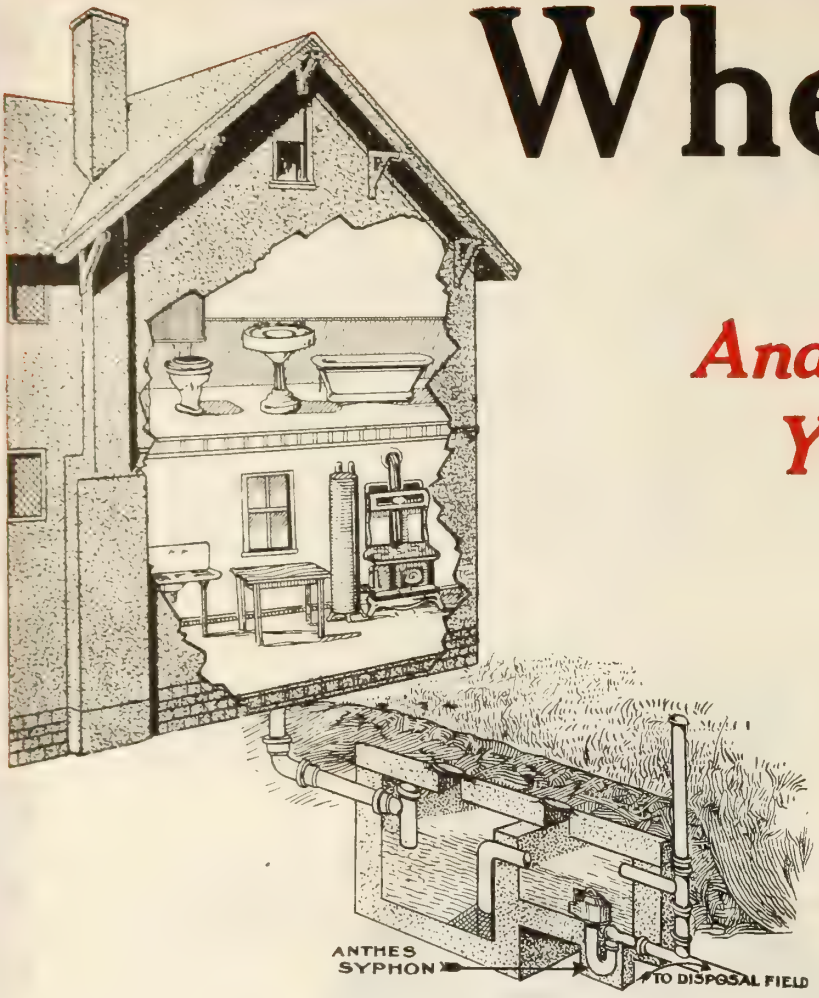
Fire Pot in Two Sections to Allow for Expansion and Contraction
Hot Blast to Improve Combustion
Every Joint a Deep, Wide Cup Joint
Large Water Pan
Anti Clinker Four Bar Triangular Grate (Simplest and Best Grate Ever Invented)
Deep Roomy Ash Pit
Cast Iron Ash Pit Bottom
Dust Damper

Where The

And the Young Folks Too



Not alone is it, in the old homesteads of the land, those sturdy oak-timbered farm houses built in a more heroic—if less enlightened—day that modern sanitary conveniences are lacking—

Right now, as you read this, houses are being erected in rural districts near your place of business, where no provision is being made for sewage disposal.

These houses and contents are being insured against fire, lightning rods insure against the elements, the Lizzie in the garage is insured against accident, but—

There has been no insurance against sickness and perhaps death from preventable, filth-bred diseases.

What is the Reason?

Old Folks ARE AT Home

No One

Has tried to sell the Farmer

An automobile salesman has sold him a car, a music shop salesman sold him a phonograph; he has been sold lightning rods, telephone, milking machines and radio sets—has been SOLD these things.

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Millions of dollars worth of business are out there just praying for some one to come and collect it and put the profits in the bank.

There is more actual business in sight and neglected in this particular field than in any other business in Canada.

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Anthes Foundry

Limited

Toronto and Winnipeg

Manufacturers of

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The Utmost in Sanitation

No. 10-SXO

No. 10-XO

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Produced in Canadian Vitreous ware, this closet with its dense hard-burned all-clay body and its lustrous deep live-white glazed surface, ensures a life-time of unchanging appearance and unvarying service.

It weighs approximately 65 lbs. net and considering the many advantages of its construction is very moderately priced. Over one thousand of these closets are being used in the new Mount Royal Hotel at Montreal.

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Cooking and Heating Appliances

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Even without "copy" the public would still know they were **"Standard"** advertisements.

Through the medium of these illustrations we are educating Canadian people to associate the name **"Standard"** with all that is new and clean and bright and attractive in bathrooms; we have built up the quality idea. And the quality of **"Standard"** fixtures justifies every claim.

When you show **"Standard"** fixtures to a prospect, the goodwill we have built up through our advertising has started the sale for you.

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Limited

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354 11th Ave. West

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Trade

B.O.T.

Mark

PATENTED

B4—"B. O. T." CHINA CLOSET COMBINATION

TANK — Glazed finish white china. Fitted with "B. O. T." flush valve, "B. O. T." elevated compound lever ballcock, and with solderless copper float, "B. O. T." lever with china handle, N. P. supply pipe No. 11 gauge, 2-inch N. P. elbow with cast brass coupling nuts.

SEAT—A302 imitation mahogany seat and cover with N. P. "C-3" bar hinge.

CLOSET—"B. O. T." 375 patented syphon bowl.

PATENTED

A354—"B. O. T." CHINA CLOSET COMBINATION

TANK — Glazed finish white china. Fitted with "B. O. T." flush valve, "B. O. T." elevated compound lever ballcock, and with solderless copper float, "B. O. T." lever with china handle, N. P. supply pipe No. 11 gauge, 2-inch N. P. elbow with cast brass coupling nuts.

SEAT—B302 Blanco seat and cover with "C-3" bar hinge.

CLOSET—"B. O. T." 375 patented syphon bowl.

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(Quality, Efficiency and Service in this superior line of Plumber's Supplies)

SANITARY ENGINEER
PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907 PUBLISHED TWICE MONTHLY

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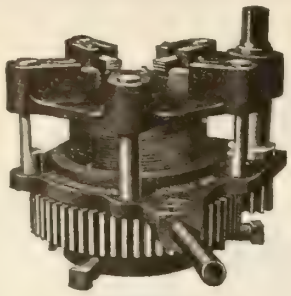

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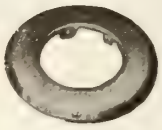

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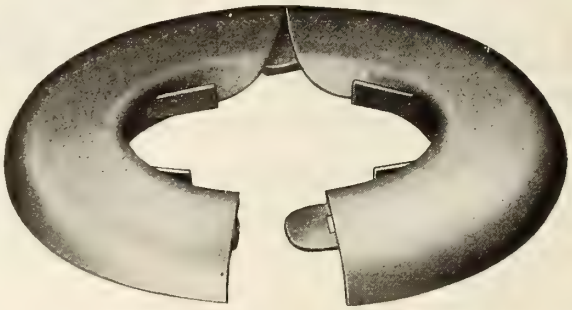

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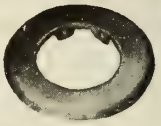

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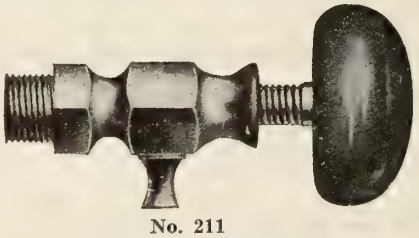

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Sanitary Engineer
Plumber and Steamfitter of Canada

Published First and Fifteenth of Month

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Suggested Amendments to Sales Tax

Movement Under Way to Have Present Act Amended in Such a Manner as to Place Manufacturers and Wholesalers on Parity in Method of Collection—Would Also Eliminate Option of Absorbing Part or Whole of Tax

EDITOR'S NOTE:—During recent months many articles have appeared in Sanitary Engineer, giving the views of various branches of the trade regarding the present method of collecting the Sales Tax. It is quite evident that there is a great deal of opposition to the present plan, and that in some cases it is working a hardship on certain branches of the trade. A great many objections to the present plan, and some suggestions for improvements have been suggested. With a view to getting the matter on a more definite basis the following article has been prepared by one who has made a very thorough study of the problem. This is a definite suggestion for a proposed amendment, and it is known that the plan is greatly favored in many quarters.

Sanitary Engineer would be glad to receive expressions of approval or disapproval of the plan outlined herewith. There is every indication that at the next session of the Dominion Parliament the amount of the Sales Tax will be increased, and it is of the utmost importance to all branches of the plumbing trade, that the application of the tax be made in a manner which is practical, and also fair to all branches of the trade.

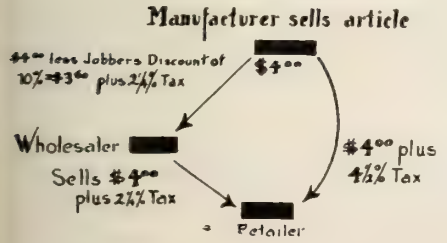
THE PRESENT method of collecting the Government Sales Tax is a serious hardship upon Canadian manufacturers as well as wholesalers holding Government Tax Licenses.

A strong movement is under way and the Minister of Finance will shortly be approached with a view toward having the present Act amended in order to offer some relief to the situation.

Proposed Amendment

(1st) It is desirable that the present Act be amended so that sales by manufacturers to wholesalers holding wholesale tax license for re-sale by the latter, also wholesalers to other wholesalers holding wholesale tax license for re-sale, be exempt from sales tax.

Present Plan



(2nd) That wholesalers holding Government tax license collect 4½% Government tax from operators or consumers.

(3rd) That manufacturers continue to colect 4½% Government tax from operators and consumers.

(4th) That the collection of 4½% Government tax by wholesalers and manufacturers be compulsory and with no option of absorbing a part or all.

The above proposed amendment will place the manufacturers upon the same footing as wholesalers and eliminate the present unfair position in which the manufacturers find themselves, whereby wholesalers only collect 2¼% tax from operators whereas manufacturers must collect 4½%, thus giving the wholesaler an advantage of 2¼% on the selling price.

Then again the wholesaler under the present Act has to absorb 2¼% tax which represents that much loss to him and this would also be corrected by the proposed amendment.

The Government will gain by the proposed amendment as they are losing the tax on the discount which is allowed the wholesaler by the manufacturer under the present operation of the tax.

It also simplifies the collection of the tax for the Government.

Manufacturer sells article to wholesaler at $4.00 less 10 per cent., which is $3.60, plus the 2¼% sales tax. The wholesaler sells the article at $4.00, plus 2¼ per cent. to the operator. On the sale of goods direct from the manufacturer to the operator the present method is $4.00 plus 4½% sales tax.

Proposed Revision in Sales Tax

Manufacturer sells article to wholesaler at $4.00 less jobber's discount of 10 per cent., but **no sales tax.** Wholesaler re-sells article to operator, at $4.00 plus 4½% tax. On sales direct from manufacturer to operator, existing method of collecting 4½% sales tax be adhered to, with no option of absorbing any part of said tax in either case.

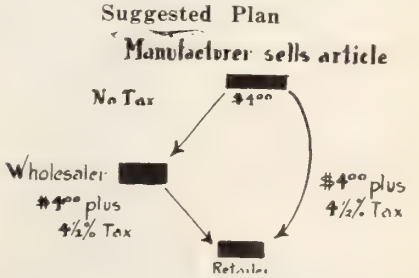
It will be noted by the illustration that the Government is losing 2¼% tax on 10% of every sale by manufacturers to wholesalers and in some cases the loss is even greater where wholesalers' discounts amount to 15 or 20%.

On the other hand, under the present form of collecting the tax, manufacturers have in many cases been obliged to absorb all or part of the tax to the operators in order to place themselves on the same footing as the wholesalers.

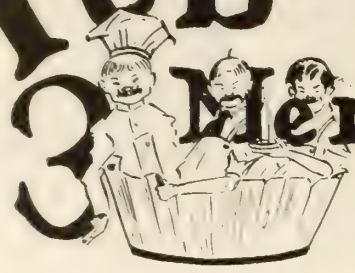
Then again, some manufacturers are absorbing a portion of the tax when selling the wholesaler in order to protect the wholesaler against the loss of 2¼% which he is obliged to absorb.

The proposed amendment will do away with the necessity of absorbing any tax and will eliminate the vicious form of competition that the Government has set up among manufacturers and wholesalers, and incidentally the Government will be the gainer.

Suggested Plan



Rub-a-Dub-Dub 3 Men in a Tub



by Major LL. Anthes

RUB-A-DUB-DUB, three men in a tub. Thus starts one of Mother Goose's rhymes. Of course this is only a nursery ditty and is ridiculous on the face of it.

Perhaps a rhyme running like this would sound quite as ridiculous, "Ruba-dub-dub, one man in two tubs."

It does seem silly doesn't it?

Nevertheless, I am going to tell you the story of a man and two tubs—a story with a moral and an element of tragedy.

It is also about Silo Ensilege, a farmer well known in two counties as "Old Si." This nickname was tacked on to him when he was still in the forties owing to certain eccentricities he was supposed to possess.

"Si" must have been a devotee of "Bobby Burns," for like the cotter in "The Cotter's Saturday Night," he indulged in a Saturday night "tub." And though he was somewhat twitted by some of his neighbors for this wanton waste of good water, he stoutly maintained "A man's a man for a' that."

Now regularly every Saturday night as soon as the supper dishes were washed Old Si would draw the family tub up beside the kitchen stove. The family teakettle and the preserving kettle would by that time be boiling and the contents of these Si would dump into the tub. Then a couple of pails of cold water carried from the pump were poured in to temper the "bath."

The family would be relegated to other parts of the house or might go calling on the neighbors.

Then peeling off his hickory shirt and overalls, and arming himself with the scrub brush and a cake of soap, Si would "go to it."

After removing "the best loam in the district" from his person Si would laboriously struggle out of the tub and give himself a good rub-down with a sheet that was waiting for the Monday's wash.

This Saturday night performance went on for years. And with the years Si's joints began to grow stiffer and his waist line grow bigger, so that in time it took many grunts and much wiggling to get his feet and the lower part of his body submerged.

The climax came one Saturday night when the family were at a church "bun fight."

Si had eaten a big supper and he had to grease the inside of the tub with soap before he could "slide into position."

Soon the old scrub brush was working like a carpet sweeper and the soapy water was flying in all directions. It was a chilly night so Si had put a couple of extra sticks in the range to make the atmosphere more comfortable. The sheet had been hung over a chair beside the stove so that it would be nice and warm.

The "scrubbing" over, Si proceeded to extricate his person from the tub, which was a harder job than getting into it. Sitting in a cramped position had not tended to make his joints any more flexible and he had to ease himself by firmly grasping the rim of the tub.

Finally he was up! He put one foot on the floor and reached for the sheet at the same time. But alas and alack! Instead of his foot alighting firmly on the floor it came down flat on the cake of soap. The soap was slippery and the oilcloth floor sufficiently wet with Si's splashing to allow the soap to do its worst.

And it did!

Si himself could never remember the details clearly.

He had once seen a burlesque actress do the "splits," and marvelled. But the burlesque actress had nothing on him.

His right foot which had landed on the soap, shot out so suddenly for the middle of the floor that he felt as if he had come down a-straddle a buzz saw. He grabbed the sheet but it afforded no support.

He lurched forward in an effort to regain his balance. In doing this his posterior came in contact with the side of the hot stove, and to this day Si carries a scar of a nicely carved "acorn," a perfect "replica" of the ornamental design on the side of the stove. He was beautifully branded for life (but be it said to his credit he never paraded the fact nor boasted of it).

Well, no sooner did the fleshy part of Si's anatomy hit the stove than he let out a terrific yell and tried to shoot himself forward. Then he lost his balance completely. His feet flew up in the air, and his head hit the edge of the stove with enough force to almost crack it (the stove I mean).

The Heavens seemed to open up with

Old Si has his Saturday night tub.

He now bears the scar of a nicely carved acorn.

many brilliant lights, and then memory failed.

Imagine the horror of the family when they returned half an hour later!

The smell of burnt flesh was still in the air, and poor old Si lay stretched out on the floor half-enveloped in the sheet, like the victim of a mine disaster.

After ascertaining that the "spark of life" had not yet fled, they smeared his "acorn" with fresh lard, applied other homely remedies, after which they laid him away "on his side" in his comfortable bed.

Comfortable, did I say?

Si did not think so when the dawn of returning reason began to break. He had a feeling that he had either accidentally fallen into a sausage machine or had tumbled from the top of the barn into a feed-chopper.

Sore? There was not a bone, muscle or sinew that did not ache. His first groan brought the family to his bedside —then as the groans expanded into profanity the "family" departed as quickly as it had come.

It was fully a week before "Si" was on his feet again. Then he stepped out cautiously, furtively scanning the floor lest somebody had left a cake of soap lying loose.

When Saturday night came he hied

The family looked on half mystified while Old Si used two tubs.

himself to his room right after supper and when his faithful wife went to his door and asked in a timid voice, "Shall I put the water on Si?" she was greeted with a "NO," so loud, so emphatic, and so bordering on the suggestion of profanity that she tripped on a piece of loose carpet in her hurry to get away, and smashed to atoms the glass butterdish she was carrying.

It was weeks before Si could look at a "wash tub" without boiling internally.

But life-long habits die hard. The time came when Si began to yearn for the good old Saturday-night bath.

But Si realized that he was not as young as he used to be. While his heart yearned for the Saturday-night bath, his bump of caution (which bump all farmers have) had been acutely developed since his "catastrophe" and he did not relish the idea of again squeezing his increasing proportions into the treacherous confines of a tub.

Then a brilliant idea struck him. Why not use two tubs?

The more he thought of it the better he liked the idea. He could place two tubs side by side, then sit in one while his feet reposed in the other.

The old man's brain tank could still work, and he was quite pleased with himself.

So next Saturday night he put the clothes boiler on the stove, and after supper dragged in two tubs which he was cautious enough to place some distance from the stove.

The "family" looked on half mystified and with a feeling of impending trouble. But Si said never a word, they dare not open their "traps."

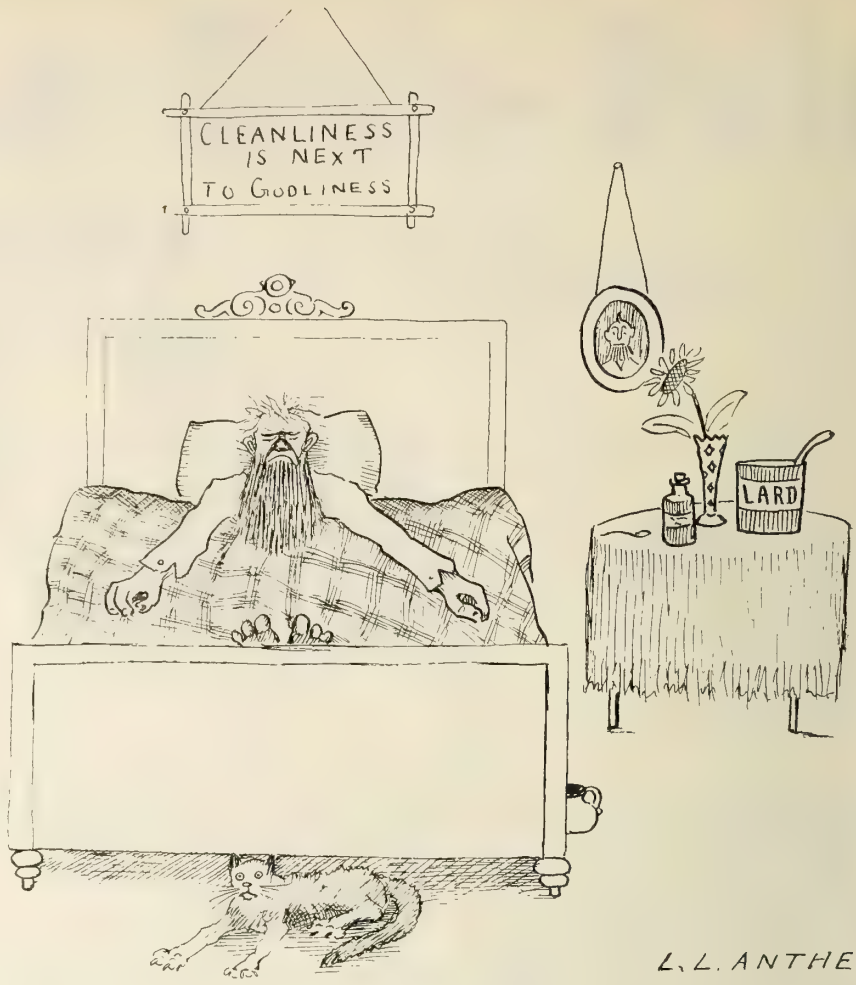
Finally Si roared "Get out." And they immediately "got out," though like Mary's little lamb "still they lingered near."

The family not knowing the "idea" were fearful of another "catastrophe" and so remained within hail. Si, however, had begun to smile with confidence and was almost like a child in his eagerness to try the new "stunt."

Soon the water was hot and Si busily ladled it into the two tubs. But in his eagerness, and sub-consciously from custom, he forgot to put cold water in one of the tubs.

When he had shed his "man-made garments" he stepped into the tub nearest the stove, having made up his mind never to turn his back upon a hot stove again.

As this tub had been properly tempered with cold water, a glow of satisfaction spread over his features as he felt the warm water play about his hairy ankles. He again felt at peace with the world. He soaped himself luxuriously and lathered his whole body with a glistening foam of suds. Then he stooped down and rested his hands upon the sides of the tub behind him, and proceeded to ease the rest of his person with it. But not being a scientist he had over estimated "his centre of gravity" and down he came "plump." He sat just where he had calculated to sit, but "OH!"



Convalescence went hard with Old Si

When the thin skin of his "acorn brand" came into contact with the hot water that he had neglected to temper, he thought somebody had pushed the stove under him.

"Did he roar?"

I should say he did!

The neighbors must have thought somebody's bull had eaten a "home-brew mash" and was suffering from colic and delirium tremens at the same time.

If it had been difficult for Si to pull himself out of one tub, it was doubly so to get out of two.

He kicked—he squirmed—he roared.

The "family," knowing their forebodings and fears were realized came rushing in like the village "fire-pump" to a barn fire.

"A hen on a hot stove," was the embodiment of restful repose compared with Si. The soap had got in his eyes and he was wriggling in his agony like a snake with its head cut off. The family made a grab at him but the soap on his body had made him as slippery as a greasy pole.

They pulled the tubs apart but that did not get him out of the hot water. He only roared the louder.

There was nothing for it. With herculean effort "the family" tackled the tub and spilled Si, water and all onto the floor.

Another raid was made upon the lard tin. Si was wrapped in a clean sheet smeared with hog-fat and the hired man despatched post-haste for the doctor.

It was a long time before the skin grew on again. In fact Si had a pretty close call, and it was a month before the pneumonia that followed was driven out of his system.

He was done with the old wash tub for ever. Never again! He would go dirty to his grave rather than take another chance!

Convalesence went hard with Si. He had always been an active man and he did not relish lying around the house like a sick woman. Then things were not going well on the farm. His two misadventures had laid him up so long, that the place was beginning to show the lack of his strong arm and supervision.

He fretted and fumed and had to ease his mind by diligent reading and studying of his "farm periodicals."

A series of articles entitled "City Comforts on the Farm," in one of the magazines had met his eye but he was "not interested."

However, having read everything there was to read about crops, cattle, sheep and swine, he was ultimately forced to read the despised "City Comforts on the Farm." And as he read he grew interested and his interest gradually developed into enthusiasm.

Again his imagination began to work, and he felt at last that it might not be

(Continued on Page 28)

The Misleading Plumber

Some of the Evils Which Result From Allowing Anyone to Start in the Plumbing Business "on a Shoestring"—How Principles of Business Are Disregarded by Those Who Are in Business for a Day But Who Hurt Bona Fide Operators

Written for Sanitary Engineer by KENNETH B. ALLISON

JERRY blossomed forth one fine morning as a genuinely qualified business man by hanging out his shingle on the front post of the dividing fence between his house and Smith, the man next door. Jerry's sign said that he was a plumber who made a specialty of jobbing and repairs although he also signified his good intentions and ability at quoting on all kinds of plumbing and heating work—large or small.

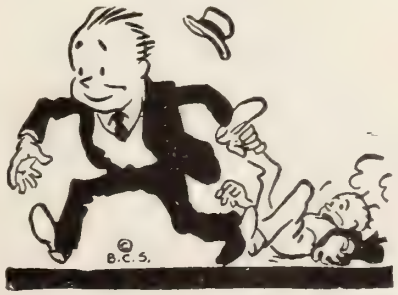
This being a democratic country our constitution is quite agreeable to the exercise of one's personal liberties as long as they do not contravene the personal liberties of the majority, so therefore there is nothing against Jerry sticking out his shingle and proclaiming to the world that he is not only qualified in having the practical knowledge necessary to install new plumbing jobs and take care of sick plumbing jobs, but he also is able to take care of the public in the matter of business, to properly figure work, cost, expenses, profit and charges, etc., so that neither he nor the public will be given anything other than a fair shake. The public nowadays strongly incline towards taking folks at their face value, of taking for granted that because a fellow starts in business he has passed all the tests and done the necessary studying to qualify him to manage that business in all its departments. That is one of the weaknesses of democratic government or, rather might I say, present day government.

Jerry, like a lot of others, misled them. His shingle was only a decoy. His stock in trade—lots of nerve and a thirty-five dollar kit of tools plus a pretty fair knowledge of how to do the work. Practically the same amount of equipment as a crap-shooter needs, and whilst the latter may be claimed to be an art or a profession yet in the realm of genuine legitimate occupations, it occupies no classification and might I be permitted to hazard a guess here that it never will be.

Misleading from the Start

Right from the start therefore was Jerry a misleading plumber and truth to tell might not some blame for the misconception Jerry was practising be placed at the door of his former boss who himself was unable to practise the business ethics he professed. Jerry figured that the boss added about fifty per cent. on to his per hour wage when making up the customers' bills and that therefore with two men working for a boss, the boss received as much pay as each of the men without having to do the work. Jerry too had read some place or other that the big successful men of the country had become so by making men and money work for them and when this was boiled down to what Jerry saw with his boss it sure looked very simple. Unfortunately Jerry was not given much chance at school and at the time Jerry was rather glad of it, in fact he had not yet realized just how much he had missed.

Without going into all the details of Jerry's business experience we want to touch on a few other examples wherein Jerry was misleading. One day a neighbor asked Jerry to give him a price on the plumbing of a house he was building. The neighbor, as all of us do when asking others to quote us a price, expected that Jerry would know what he was doing. But Jerry misled them. He started to estimate the job very carefully. Being poor at figures he got a traveler friend to price his estimate for him. He enquired from others in the trade as to just what price this kind of job was going for and finding it much lower than his own decided that he, himself, lacked experience in this regard and, therefore, sticking out his chest as a fast working mechanic, discarded the warning of the estimate sheet and beat the price down for the mere satisfaction of feeling he was getting into business in a big way.



The misleading plumber upsets recognized business principles and hurts the bona fide operator.

Many on Same Order

The vast majority engaged in the plumbing business today are on the order of Jerry. They are taking competition house work at $270 per house whereon the material alone is costing them $230, so that they have $40 left for expenses, profit and labor. The labor represents a week and a half of their work when working fast for themselves, and yet those same men as journeymen cried the loudest as union members for pay within a few cents of $40 per week and at the same time in working for another boss they almost invariably took at least 25 per cent. longer to do the same class of work.

Withal that there is so much plumbing contract work done for cost, below cost, or a very small margin above, there has always been strong feeling on the part of the public that the charges of the plumber are exorbitant and that his profit is excessive. This is, in a great measure, due to the plumber himself whose methods of charging have neither rhyme nor reason to them. Having done a considerable amount of his year's work at an almost unbelievable low cost, when all facts are known, he has of necessity to make it up some way because those expense items, and those hidden items, have to be met and they are mounting up just the same whether the business we do to-day is taking care of them or not. Every business man has expenses and if in to-day's business we do not make allowance for them, then in the business of tomorrow we must make that allowance, that is if we are to continue in business.

The Good Samaritan

Ah, but here comes our Good Samaritan. He has faith in us. He believes we will do a good job without wasting time and will also render a true account of our stewardship. He instructs us to work for him without asking for our committal beforehand as to the final charge. We have no competition. Some of us make this Good Samaritan job meet a lot of past expenses. The customer kicks at your bill. A similar job done for a friend of his under a lot of competition was 40 per cent. lower than your bill. The other job must have been profitable, although perhaps close, so why the excessive charge in this case? As a business man your customer cannot conceive of anyone taking the previous job at so absurd a figure as it really was because he himself in his own business while meeting competition at least makes his expenses. Whether your customer pays the entire amount of your bill or obtains a reduction he will feel for all time that plumbers cannot be trusted.

All this trouble is caused by the less-than-cost guessimating plumber. In other lines of business cost is considered as net cost plus expenses, that is gross cost. When, therefore, other lines

sell at cost they are selling at gross cost. This fact has been brought out when witnesses have been under oath at various investigations. We plumbers, however, consider cost as net cost and, therefore, we are selling our efforts probably fifteen to twenty per cent. lower in comparison than other lines of effort. This confusion of the two costs might be removed by the substitution of the word margin for one of them.

Jerry, like a lot more of us, misled in other ways. We buck along without paying our expenses and our household bills and rush down to the credit man of the wholesale house with the full amount of the draw we obtained on our contracts. It looks good, but in the neglecting of our other bills we invariably come to a time where this juggling of money leaves us flat on our back with the cessation of new work and we, therefore, work up a new line of credit momentarily until the fast approaching day when they all close in on us, take ten to twenty-five cents on the dollar, and we admit that our little shingle was a decoy and that we are justly known as "The Misleading Plumber."

Timely Suggestions for Heating Engineers

Adapting Domestic Heating Equipment to Use of Substitutes for Anthracite Coal—In View of Threatened Shortage of Coal—Serviceable Suggestions to Customers

MANY of the clients of the heating engineer are now faced with the problem of what alterations may be necessary to adapt their heating equipment to the use of substitutes for anthracite coal, in view of the threatened shortage this winter. There is no doubt that soft coal, pea coal, coke and wood will be used extensively this winter in domestic heating plants and the heating engineer might give some service to customers. Such service might take the form of advising them along the following lines when substitutes for anthracite must be used:—

1. Preferable choice is pea or buckwheat coal. No extra care or attention is necessary, except that fresh fuel should become ignited before ashes are shaken out. Grates should be shaken very carefully, so as not to break down the fire-bed.

2. Coke—This fuel burns quickly and with an intense heat. Fuel should fill the fire-bed to the bottom of feed-door opening, and can be banked higher in the rear of the firepot. It will require longer to ignite first fuel, and subsequent feedings should be ignited before ashes are shaken or drafts checked. Lower draft opening should be closed except for first lighting, and smoke pipe damper should be regulated according to strength of chimney, so that fire will not burn out too quickly. Draft in feed-door must be manipulated to assist in checking fire.

3. Wood chunks may be burned successfully, but we recommend ordering wood-plates to lie over grates. We can furnish these plates promptly at little expense to you.

4. Soft coal is the poorest substitute, due to the more frequent attention and care necessary. A very careful bed of papers and wood will be necessary for first lighting. Open all smoke-pipe dampers, and feed-door draft, and leave base-door draft open for first lighting. When coal is ignited close base-door slide but leave fire-door slide and all smoke-pipe dampers open to guard against possible explosions. These explosions are caused by the sudden ignition of gases when too much fuel is added. For this reason live fire ought to be burning through the top of the fire at all times. Care in adding fuel, so that fresh fuel is ignited promptly, and breaking up any crust on top of the fire will prevent explosion. Keep feed-door closed to prevent escape of gases, but keep slide in that door open to complete combustion of gases. When fire is burning briskly, and gases are ignited, open feed-door slightly to increase combustion.

ALL HE COULD AFFORD

He was a local salesman for a Toronto plumbing concern. The depression in business being serious, he was willing to go out of the way for an order. One day, in a spirit that reflected recklessness as well as hope, he invited a prospective buyer out to dine.

The guest picked up the menu, studied it, and ordered from soup to nuts. The waiter turned to the host.

"What will you have, sir?"

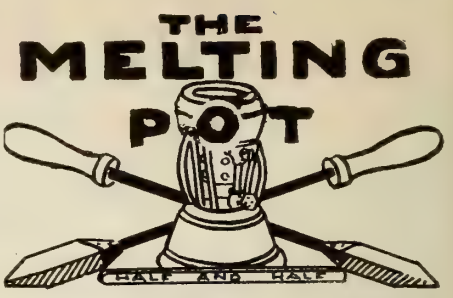
The host despairingly replied: "Gimme tea and toast."

From across the table came the mildly surprised query of his friend: "What's the matter, Jones, on a diet?"

"No. On commission."

TWIN SECTION BURNHAMS

A new catalog has been published by the Burnham Boiler Corporation, Toronto, featuring the Burnham make of boilers. This booklet is specially devoted to illustrating the big twin-section Burnham, 50-inch grate, boiler. Illustrations of sectional parts, and clear cut descriptions of the various features of these products, occupy chief space in this catalog. It is described by the makers as a cast iron twin-section boiler with a 50-inch grate. This type of boiler is claimed to be just the thing for low-pressure, heavy duty jobs. It is also pointed out that these products are comparatively easy to set up on account of the twins, or half-sections.



A stout, baggage-laden plumbing supply traveller was trying to make a hurried exit from a railway train. At the door he stumbled on the foot of a brawny Scot.

"Hoots, toots, mon!" growled the Highlander. "Canna ye look whaur y're going? Hoot, mon, hoot!"

The burdened traveller slammed the door behind him and shouted through the window:

"Hoot yourself! I'm a traveller, not an automobile!"

One of the craft who believed he knew all about parrots undertook to teach what he thought to be a young, mute bird, to say "Hello" in one lesson. Going up to its cage, he repeated that word in a clear voice for several minutes, the parrot paying not the slightest attention.

After a considerable time the man apparently realized his defeat, and gave up the attempt.

At the final "Hello!" the bird opened one eye, gazed at his would-be teacher, and snapped out, "Line's busy!"

RIGHT WHERE YOU ARE

By James Edward Hungerford

Right where you are, if you git-up-an'-git,
An' hustle an' rustle an' do,
An' put your heart in it an' never say "quit."
There's plenty of good things for you;
The prizes are waitin' right now to be got;
You'll find 'em wherever you are;
By provin' if you're a "go-getter" or not—
A "flash-in-the-pan" or a "star."

The croakers are croaking about the hard times,
An' how things are hopelessly "punk;"
They're mournin' the shortage of nickels and dimes—
But that kind of "junk" is "the bunk!"
An' while they are buzzin' 'bout biz bein' bad,
The "wise ones" are hoppin' about,
A-coppin' the prizes right there, to be had—
An' puttin' ol' "hard times" to rout!

It's always "hard times," if you're thinkin' that way,
An' prospects are gloomy and blue;
But, while the sun's shinin', if you will "make hay"—
You'll get what is comin' to you;
Don't let "hard times" floor you an' steal your good "rep;"
Don't "flash-in-the-pan"—be a "star;"
We know you're a winner—now show us some "pep"—
Make good on the job where you are!

Simple Principles of House Drainage

How Good Work Can be Done on Simple Lines Without the Use of Complicated Appliances and Heavy Expense

First of a short series of articles on House Drainage prepared exclusively for Sanitary Engineer by MAJOR JOHNSTONE TAYLOR

To the average householder the mention of "Drains" brings to mind something mysterious and of necessity unsavory. As a matter of fact there is nothing mysterious about drainage at all, while if the system is properly constructed there need be no part of it that is in the least offensive. It is now upwards of 50 years since the water carriage system was recognized as essential for the proper removal of liquid refuse from dwellings, but even so there is still a good deal of ignorance as to what exactly constitutes a good house system. Town drainage and large sewage disposal works are now well established on well-defined lines in all communities of any size, they are carried out under the direction of skilled engineers and for the most part are highly satisfactory. On the other hand, the drainage system of buildings is left more or less in the hands of the owner, who, provided the system does not offend anyone or seriously transgress the sanitary by-laws of the district, is pretty much at liberty to do as he likes, especially if there is an existing system which, as stated, gives no offence. Of course where there is no drainage, or in the case of a new house, the local authority may enforce the installation of a system and what is equally important demand a certain standard of work, but it is not the duty of such authority to show how this standard can best be worked to in each individual case and that is what these articles aim at doing.

There is a good deal of difference between a slipshod system laid down any way and the essence of refinement found in the houses of the very rich and in large public buildings. The former is worse than useless while the latter is refinement pure and simple, which is often entirely unnecessary in the average dwelling. It is necessary to take a mean course between the two extremes if good sanitation is to be obtained at reasonable expense.

A THOROUGHLY bad system of internal drainage may go on unnoticed for years for the simple reason that the users have become so inured to any offence it may give that they cease to notice it, and although their vitality must suffer, actual sickness need not result. They are probably hardened against it.

It is when ownership changes that the trouble begins. The general pervading atmosphere of "drains" becomes apparent to the new tenants and the sanitary man gets called in. It is his duty to ascertain what is wrong and give advice as to how matters may be rectified. This means a thorough inspection

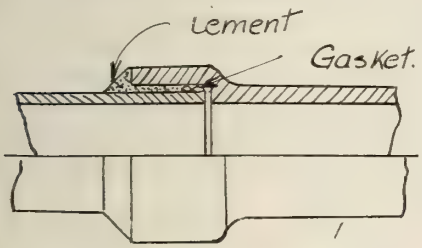


Fig. 1.

of the system. The outfall should first be ascertained. If into public sewer all well and good, if into cesspool the nature and efficiency of this wants looking into.

If the outfall is into a ditch only it is bad practice, but if into a large volume of running water, it may suffice if it does not offend any laws or riparian owner lower down. Nevertheless a septic tank is most desirable.

Such tanks will be discussed in a subsequent article.

It is most essential that immediately above the outfall there should be a disconnecting trap and a fresh air inlet, both of which are often absent in old systems. The size of the drain should be noted. Old drains are invariably too large, 4 in. pipe will serve the average house, 6 in. most large buildings.

Large pipes silt up and get foul because they have no self-cleansing velocity.

If the pipes are not cement-jointed and laid on a concrete bed they are bad. They must be exposed to ascertain this. Beyond soil pipes, no waste, or rain pipes should enter the drain direct. There must be traps at these points.

And what is more they must be good traps of the types suggested further on.

There should be ample facilities in the way of inspection chambers or manholes for getting at the drains and these should be ascertained.

There should also be at least one outlet ventilator carried over the roof. As regards the internal fittings. The only really good form of closet is the washdown type. The washout may suffice but is not to be recommended while pan and valve closets are stinking abominations.

Sinks, baths and wash tubs must all be trapped on their wastes, if these are cased in they are open to suspicion. Waste pipes should not enter rain pipes.

The joints of the soil pipes and waste pipes want looking into, in fact every detail of the system should be carefully inspected and noted.

The whole information should then be embodied in a report on the following lines:

Outfall.—State if to sewer, cesspool, etc.

Interceptor trap.—State if existing, if of good pattern, in order, etc.

Inlet vent.—State if existing and if working.

Outlet vent.—State if existing and if working.

Line of drains.—Describe direction in connection with plan.

Drains.—Give size, method of laying, jointing, fall and if clear.

Waste and smoke tests.—Give results and state where leaks were found.

Manholes and access chambers.—State if existing, and whether adequate.

Sweeping arms.—State if existing, and whether adequate.

Open traps.—State generally if good or bad and note the bad ones.

Soil pipes.—State construction, condition, etc.

Waste pipes.—State construction, condition, etc.

Closets.—Describe in detail, state where bad, note flush systems.

Sinks, baths, etc.—Describe in detail, state where bad, note traps.

Cisterns.—Describe. State if covered and clean and have proper overflow.

Dangerous items.—Lay special stress on anything that is a direct menace to health, such as wastes direct connected to drains, leaky closet pans, sodden floors from leaks, vents too near windows, cracked manhole covers, etc., etc.

Testing

It will have been noted that tests are referred to.

It is necessary of course to test the drains; even if an examination reveals them as obviously bad, a test will con-

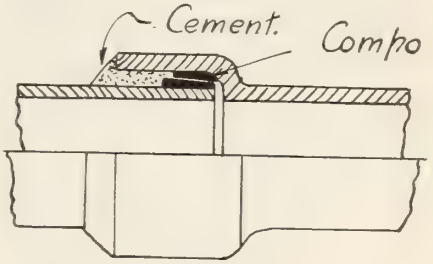


Fig. 2.

vince the owner more than any report will do. The water test may be applied by plugging the drain at its lower end with a drain plug and filling with water and noting if the water stands at a fixed level, say in a trap. These plugs are usually of the expanding rubber ring type tightened up with a screw. They are a usual item of a plumber's outfit.

Separate sections of the drain would be taken in turn. The water test serves to show whether a drain leaks, but not where it leaks unless exposed. It is more useful for testing lengths of new drain before they are filled in.

(Continued on page 38)

The Sales Tax and the Cash Discount

Manufacturer Receives Letter From Operator That Sales Tax Need Only be Paid After Cash Discount is Deducted—General Practice is for Operator to Take Discount on Whole Amount Including Sales Tax and Manufacturer Debits Government for the Difference

TAKING this matter up with government officials and other manufacturers, some interesting facts have been secured. The subject is dealt with in a ruling made by the Commissioner of Customs as follows:—

"Cash discounts may be allowed for excise tax purposes if allowed and deducted on the face of the invoice by the seller. If the invoice is subject to a cash discount conditional upon payment within a stated period and if the purchaser when making settlement of the bill avails himself of the condition under which the discount is allowable, a credit may be taken by the seller in his next succeeding tax return for the tax paid on the amount of such cash discount—provided that such next succeeding tax return is made within 60 days of the payment of the tax to the government. If the foregoing adjustment cannot be made within 60 days the overpayment can only be corrected by application of the seller to the Department of Customs."

One manufacturer discussing the subject with Sanitary Engineer pointed out that the above policy is followed by them, and the total of all cash discounts is deducted from sales before making returns to the government monthly.

Would Be Much Confusion

As to the suggestion for a plan which would render unnecessary this adjustment by the manufacturer, the president of a large Hamilton firm states: "We do not believe it would be possible to make an arrangement whereby the sales tax might be assessed on the invoice value, less cash discount.

"A large proportion of our several hundred accounts do not avail themselves of the cash discount, and it would cause great confusion were we to attempt to meet the individual wishes of our customers. We would either have to assess the sales tax without deducting the cash discount, or else make a general rule to deduct the cash discount before computing the sales tax. This latter arrangement would, we believe, cost us too much in the course of a year to be seriously considered."

Makes No Difference

A Montreal manufacturer states he has gone thoroughly into the matter and cannot see that it makes any difference to the retailer whether the sales tax is added before or after discount is deducted. Following are two examples bearing out this contention:—

(1)	Goods	$100.00
	Tax 4½%	4.50
		$104.50
	2% discount	2.09
		$102.41
(2)	Goods	$100.00
	2% dis.	2.00
		98.00
	4½% tax	4.41
		$102.41

"As you suggest the matter could hardly be adjusted in advance of payment and we have experienced no difficulty with this phase of the Sales Tax question," he stated.

The general manager of a large Ottawa firm states that as a general practice, manufacturers from whom they buy permit them to deduct 2% cash discount from the full amount of the invoice including sales tax and they charge back to the government the amount represented by 2% of the sales tax.

The manager of a Montreal paint firm states that his firm eliminates much trouble in the matter by stamping each statement and invoice as follows:—"Cash discount is not allowable on Sales Tax."

HERE IS THE ENQUIRY

A large Western Ontario manufacturer writes as follows:

"Editor Sanitary Engineer:

"We recently received a circular letter from an operator to the effect that Sales Tax need only be paid after the cash discount is deducted and requested in future that we deduct cash discount before adding sales tax.

"As an example—if an invoice is for $100.00 and cash discount is deducted as they suggest, it means a difference of 9c in their favor which may be in order, but in so far as the individual dealer is concerned we question if the aggregate will be very large.

"If the ruling, as they outline, is correct it would add considerably to the manufacturers' and jobbers' difficulties for the reason that it is practically impossible at the time that statements are sent out to say what dealers are going to pay cash. Supposing we make a draft on the dealer covering his several purchases during the month, which are taken from a ledger, how are we going to tell what cash discount he is entitled to without going over all our files and referring to each individual invoice?

"This may seem a small matter from the view point of dollars and cents, but the loss of time entailed is worth considerably more than would appear on the surface."

Not General Practice

A Hamilton manufacturer states that he has requests from certain retailers that Sales Tax be paid only after cash discount is deducted but no general practice is made of doing it.

"There are certain firms which we know take care of their account regularly every month deducting the cash discount; with such firms we have made it our policy to deduct the cash discount before adding the sales tax. In all other cases sales tax is being added in the normal way.

"We do not think that a practice should be made of deducting the cash discount before adding the sales tax, because in a great many cases customers do not take advantage of the cash discount; they may take advantage of the cash discount some months but not others, and it would only mean confusion would arise in this connection.

"Regardless of what the discount may be, or when it is made, the sales tax must be based on the actual selling price of the article. That is, if the article is sold at $1,000, less two per cent. discount. for cash, and the purchaser pays cash, then the sales tax is based on $980."

The above ruling was secured from R. R. Farrow, chief commissioner of the Department of Customs and Excise, by Sanitary Engineer, as a result of the complaint of a prominent manufacturer that certain retail merchants had taken the stand that the sales tax need only be paid after the discount was deducted. These merchants had requested that the cash discount be deducted from the invoice before adding the sales tax.

The ruling means that operators are justified in changing the amount of the sales tax on the invoice from a manufacturer or wholesaler where they take the discount and therefore pay a less amount than the bill is made out for.

Of course this will obviously be difficult for manufacturers and wholesalers as they do not know when sending out the invoice whether the operator will be paying cash and taking the cash discount or let the bill run and pay the gross amount.

Mr. Farrow's attention was drawn to this point and he said that while he appreciated the difficulty, he thought the operators and manufacturers might get together and come to some happy arrangement without violating the regulations.

Not Legal for Tinsmith to Make Still Unless Properly Authorized

Special License With Annual Fee of $25.00, Also Bond of $2,000.00, Required by Inland Revenue Department—All Orders for Stills Must be Reported—Buyer Must Also Possess License to Operate Still

A FIRM CONDUCTING a tinsmith and plumbing department has written in to Sanitary Engineer, advising that they have been fined for making a still. Their desire is to secure information regarding their position in this matter, whether legal or otherwise.

In order to obtain a definite ruling on the subject, Sanitary Engineer interviewed the collector, Customs and Excise Officers, Toronto, and secured the following statement, which indicates that to conform to the law, a special license is necessary before making any kind of a still, and such stills can in turn only be supplied to parties possessing the necessary license governing their operation.

"IT IS absolutely illegal for a tinsmith, or anyone else, to manufacture any kind of a still, unless they are protected through the possession of a special license authorizing them to perform such work," stated J. H. Bertram, Collector, Inland Revenue Department, Customs and Excise Offices, Toronto.

Further questioning by Sanitary Engineer elicited the information that "this is the law of the land, which has been in effect for thirty years or more, in fact ever since laws became generally recognized throughout Canada."

"Whether the tinsmith, or any other party manufacturing a still, knows the purpose for which it is intended to be used or not," stated Mr. Bertram, "it is a violation of this law, unless the tinsmith or party manufacturing the still has taken out a special license to do so.

Bonded for $2,000.00

"Such licenses are only issued to certain responsible parties upon payment of an annual fee of $25.00, together with a bond of $2,000.00.

"Under these regulations," continued Mr. Bertram, "they are required to report every single still they make and, of course, such stills are only to be made up for persons or concerns who possess special licenses to operate same.

"If a tinsmith or manufacturer holding a license to manufacture a still receives an order from any individual, this is reported to this department in the regular way and then, if such party does not possess a license to operate a still, it is confiscated by the government.

Must Report All Orders

"The purpose for which the still is to be used has no bearing on the case whatever," stated Mr. Bertram, in response to further questioning. "All orders received by anyone holding a license to make up stills must be reported to the Inland Revenue Department, and failure to do so involves a heavy fine as well as the revoking of any such license held by the tinsmith or manufacturer, as the case might be.

"The manufacture of stills by persons not properly authorized to do so invokes a heavy penalty by law, as this is a direct violation of the Statutes."

Mr. Bertram further pointed out that these regulations were very strict in every sense of the word. "We do not receive very many inquiries of this nature regarding stills, as most people know the law regarding this matter, it having been in effect as previously pointed out for a large number of years."

Information Available

A specially licensed tinsmith, making up a still for a properly authorized concern, would not be subject to manufacturers' sales tax, according to officials of the Customs and Excise Department, as in this case it is made direct and not for re-sale.

"The date of the order, the name of the party placing same, and all particulars are required to be reported to the Inland Revenue Department. Any person who is not absolutely clear upon any of the points involved can secure detailed information upon writing or inquiring at this office, but the law is plain, and there are really no technical points to clarify. It is illegal for anyone not possessing the proper license to make any kind of a still, and it is likewise against the law for anyone to order or operate a still who has not first taken the proper steps to comply with the license regulations."

Plumbing Inspection Shows Many Defects In Winnipeg

WINNIPEG, Man.—Report of the City Health Inspector showing work done during year 1921, reveals the following inspections:

Drains, choked or defective	267
Sinks and wash basins, choked or defective	290
Water closets and fittings, choked or defective	511
Baths and fittings, choked or defective	36
Urinals and fittings, choked or defective	71
Soil-pipes, clean-outs, etc., choked or defective	199
Catch-basins and traps, choked or defective	237
W. C. compartments, defective light and ventilation	90
Plumbing and water pipes frozen	157
Vent stacks, frozen	4
Sewer connections, frozen	7
Water services, defective or cut off	271
Plumbing fixtures, insufficient	64
New plumbing, notice to instal	106
Total plumbing defects	2,310

In addition there were 951 inspections of chimneys, boilers, etc.

There were only 157 cases reported of frozen plumbing or water pipes, as against 218 for 1920. The winter was, however, comparatively mild. Five hundred and four defective cellars or basements were dealt with, some being reconstructed and others filled up. It is a long job getting rid of all the old wooden cellars constructed in years gone by, but we hope eventually to dispose of the last one. The trouble is to prevent the re-lining of these cellars with wood and thus perpetuating insanitary conditions. Four frozen vent stacks only were reported, and seven frozen sewer connections. As usual, many proprietors of locked-up stores tried to evade the necessity of providing heat enough in their premises to prevent the plumbing from freezing.

Of the total of 2,310 plumbing defects discovered, 1,611 consisted of defective or choked drains, sinks, baths, wash-basins, W. C.'s or other fixtures. There were 90 cases of W. C. compartments without proper lighting or ventilation. In 271 cases the water service was cut off or defective. One hundred and six plumbing notices were served on the owners of houses on streets where new sewers or water mains were constructed. In 64 cases notices were served for additional plumbing fixtures.

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Good Health Week

A LARGE manufacturer said that because of the unhealthful and harmful manufacturing processes in his plant, he was forced to cover each of his workmen with $3,000 compensation insurance. As rapidly as broken health incapacitated a worker, another had to be hired to replace him. This was expensive, to say nothing of its disastrous and inhuman effect on the men. The manufacturer found that the low productive capacity per man, combined with the fixed excessive charge of breaking in new help, was inflating the cost of production to a point where it would soon become prohibitive.

One day a solution presented itself. A means of introducing fresh air in quantity sufficient to insure health to the worker and in a measure harmless to the process of manufacture, was found and installed.

By maintaining a constant flow of pure, fresh air from the outside into the manufacturing rooms a steady and healthy class of workers to-day supplants the old tragical flow of transients departing with broken health. Employees' liability insurance premiums have been reduced and manufacturing costs materially lessened.

Wherever human beings congregate—whether in homes, offices, theatres, stores, factories, etc., sufficient air supply to the individual as well as the group, becomes a serious consideration of concern to everyone involved. Business and industry have at last awakened to this consideration and the necessity for coping with it as a factor in the joint problem of production and efficiency. Human mentalities function as human bodies thrive and the first fundamental of physical well-being is natural, fresh, clean air for lungs—a vital element in the life-flow of humanity.

Daylight factories and indirectly lighted offices have, since the day of their adoption, proven the truth of the principle that better light produces quickened sensibilities in the worker. Logically, he works better, more accurately, willingly and contentedly.

The theatre, too, is facing a new and individual problem with respect to attendance. It requires something else besides a good performance to draw public patronage and that something else is physical comfort which is experienced in any well ventilated room or enclosure. Nothing is so discomforting as close, fetid atmosphere in crowded room or hall. This is invariably true of any place where people gather in close proximity. Headaches, faintness, perspiration and the feeling of heaviness denote the lack of fresh, clean air and a sufficient amount of it.

These things have the perilous effect of lowering human vitality. Hence it becomes the duty of every human being to avoid any poorly ventilated quarter or enclosure in the interest of self and of the community in which he lives. Lowered vitalities are susceptible to disease germs which thrive in impure, stagnant air.

Public health is the fabric of humanity, society and industry. Fresh, clean air is a natural thing and the human body thrives never so well as under natural conditions. The individual, the community or the nation is no stronger than its health, which is the first fundamental of successful living.

Good Health Week is being held in Canada from Oct. 23-30. A newspaper advertising campaign and other publicity will help educate your prospects along sanitary lines during that week. It is an opportunity for you to cash in by linking up with it.

Conserve Fuel and Better Heat

IN VIEW OF A likely fuel shortage this winter in Canada many of the heating engineer's clients are enquiring concerning economical operation of heating plants. In this connection there is an opportunity for giving helpful advice. Few people realize that 25 per cent. of coal can be saved and much more healthful heat provided if due attention is given the subject of moisture. For healthful conditions in the cold period the house temperature should range from 63 degrees to 68 degrees, with a humidity of approximately 60 per cent.

For a dwelling of moderate size this needs the addition to the air of from two to four gallons of water in the form of vapor in each twenty-four hours, and in exceptionally cold weather as much as nine gallons.

No one can well take exception to the recommended temperature limits and house humidity, for they are precisely the same as those of a mild day in May or June. This ought to be a sufficient answer to those who suggest that a soggy atmosphere is being advocated.

When the temperature outside drops below 50 degrees the heating of the outdoor air to a temperature of approximately 73 degrees reduces the humidity to less than 30 per cent. This does not mean that there is less water in the air. It merely means that at a temperature of 72 degrees the air is capable of holding much more water.

It ought to be evident without argument that it is trying to the air passages of the lungs to pass constantly from a humidity of less than 30 per cent. to one of approximately 70 per cent.

There is another advantage in having moisture in the house air in that it does away with the sensation of draft, giving a more uniform temperature to all parts of a room, and with a moderate degree of heat giving a sensation of greater warmth.

In very cold weather it is unnecessary to force the heating apparatus to its utmost capacity, which is a waste of time and coal.

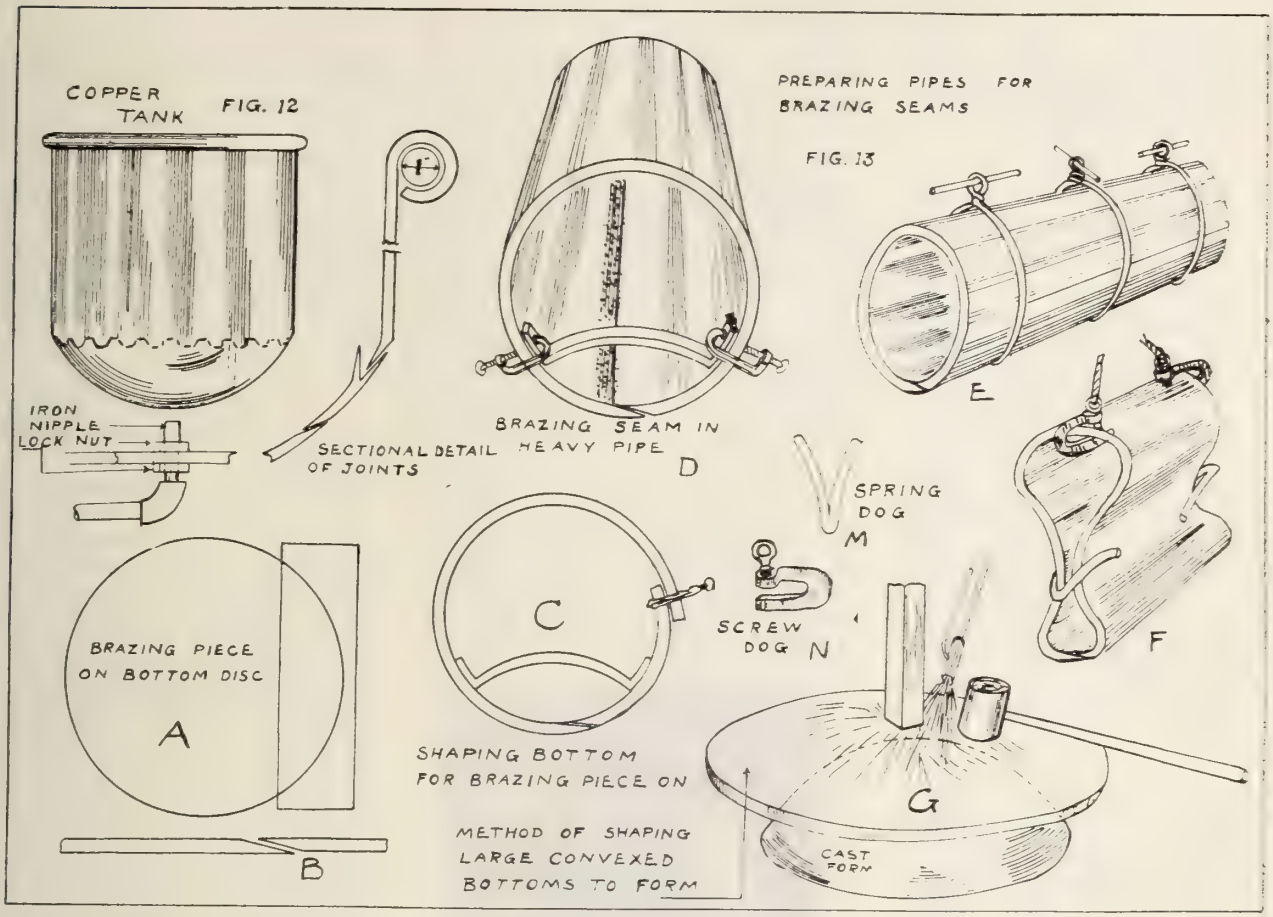
In furnace heated houses a sufficient supply of water must be brought near enough to the firepot to evaporate the needed amount. It is worth while to run an outlet from the water supply into the hot air space, and this may, if it is desired, be arranged to supply the water automatically. However, there is little trouble in turning it on by hand whenever coal is added to the furnace.

In many cases the problem would be that of a tenant in a steam heated building, in a single room or apartment under his control. Water containers can be had which fit closely to the pipes of radiators.

So far as the amount of moisture in the air is concerned, it is safe to say that it is unlikely that too much will be secured. For house temperatures, the difference between a wet and a dry bulb thermometer should be about 8 degrees Fahrenheit, not less than 6 degrees nor more than 10 degrees. However, one may trust his own sensations in the matter, and if the house has the feeling of a fine June day he may assume that both the temperature and the humidity are about right.

Brazing Joints on Copper Tank

By O. W. KOTHE, Principal, St. Louis Technical Institute, St. Louis, Missouri.
Written for Sanitary Engineer.



Brazing Joints on Copper Tank.

IN TAKING up the matter of brazing various seams still further, we have in figure 12 a large copper tank. The bottom is of such a size that a piece must be slipped through the sheet before a full bottom can be cut out. The general practice is shown as at A and B, where a piece is added after being feather edged. Now to braze a straight piece of copper in this way, is very difficult, since the copper will warp and buckle in the heating process. It is best to roll this bottom to take up the shape as shown at C. A band iron clamp is shaped and set in similar to the sketch in the straight pipe above at D. This reinforcement bar is clamped in with screw dogs or clamps as at N. Observe, this places the flat seam on a curve and it is not so liable to buckle. If the one edge does sag during the brazing process, then by means of the iron hook, it is rubbed to make it lay up as explained in a past article. When this is brazed the clamps are loosened and the metal is straightened out again as at A, where the circle is described for cutting out the disc.

At times quite a number of copper kettles or tanks are made and in that case a forming block as at G will come in very handy. This is a large cast iron form with our copper disc centred over it, and a timber run to the ceiling to hold in place. By means of a gas torch playing a flame from the top outward, a helper can keep the metal sufficiently soft and pliable for the workman to swing the mallet. All this is just plain work, as it requires considerable effort to shape up dished bottoms of this kind, and make them uniform.

Heavy pipes can be easily brazed by means of the band iron reinforcement and clamps shown in G of figure 13. Other men prefer wrapping wire around the pipe as at sketch E. Still other workmen prefer shaping the body of pipe to somewhat take the form of sketch F, using string dogs as at M to hold the metal together. The reason for shaping the metal this way is that by making short bends close to the seam, there is not so much liability of the seam opening up while brazing. This also acts as a reinforcement and buckles are not so easily formed by the heat. Just whichever method is most suitable for its place the workman must try out on various occasions and make use of what is most serviceable. On heavy work, clamps and chains with pulleys are often provided, so that there is not much to do but adjust the chain, so your work hangs properly over the fire.

Right here we should mention that in brazing the workman must always have a good bed of coke or charcoal maintained in the forge. If this is not the case and the fire burns low and exposes the bottom of the forge in places, the cold air from the air blast will cause an oxide to form around the pipe and this makes it very difficult to braze, even after a good fire is filled up again. So the main thing is to have a good fire and see that your joints are perfectly cleaned and washed with water and have a good supply of borax pressed in the seams. Then as the brazing continues add borax as you find necessary to help the spelter in flowing, but care must be taken not to be wasteful of it since that does no good. A suitable amount of spelter should also be used to thoroughly sweat a joint with solder.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

NEW PREMISES

Toronto.—W. J. Domelle has removed his plumbing business to larger premises at 751 Queen St. East, from Broadview Ave.

OBITUARY

The death is announced of Harold Richard Honeycombe, one of the original members of the 3rd Toronto Battalion, C. E. F., at the Military Hospital, in London, Ont. He was born and educated in Toronto. At the outbreak of war he was working for his father, John R. Honeycombe, who is in the plumbing business. He enlisted in August, 1914, and proceeded overseas the same year. In 1915, in France, he received minor injuries when shell concussion blew him off his feet. He was later transferred to the Royal Air Force, and at the time of the armistice he was serving with them as a pilot.

PLUMBERS MUST PASS EXAM.

Kitchener, Ont.—All journeymen plumbers of Kitchener will have to undergo an examination by a board, according to the new by-law framed by Kitchener. The by-law is patterned after that of Toronto and is to be sent to the Provincial Board of Health for approval. The main feature of it is that the plumbing fixtures must have ventilation.

TODMORDEN SEEKS SEWERS FROM TOWNSHIP COUNCIL

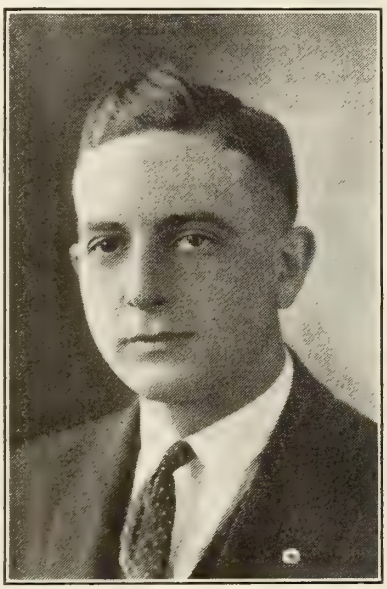
A special meeting of the Todmorden Ratepayers' Association was held, when the York Township engineer's report on the sewerage scheme for the district was read by Secretary Fred Hazelton, and discussed by the members. It was decided to ask York Township Council to proceed with the installation of sewers in Todmorden.

CALGARY SEWAGE DISPOSAL MATTER AGAIN TO THE FRONT

Calgary, Alta.—While the city officials in Calgary have not paid much attention to the demand of the Bassano town council that a sewage disposal plant should be built in order to protect places east of this city from contaminated water, the latest "note" from the dam-site authorities has caused some serious thought. Bassano has been demanding that Calgary build a sewage disposal plant for a long time. During the war the agitation died down, but was revived and resulted in the final passage of a by-law authorizing the construction of a plant to cost $350,000. This happened on December 19, 1920. The bonds were not sold, and nothing has been done since. Calgary has received word from Bassano that if some notice was not taken of the recent communications within the next ten days, they would place the matter in the hands of their solicitor and take court action.

W. F. HILL, JR.

W. F. Hill, Jr., has been appointed Western Canada representative for W. H. Cunningham & Hill, Ltd., Toronto. He will make his headquarters in Winnipeg and work the territory from that city west. He has been with this company for a number of years and for the past year has been calling on the trade in Ontario. The new appointment gives him a larger field. He is the son of W. F. Hill, the secretary-treasurer of the firm.



W. F. HILL, JR.

MANY OIL BURNERS BEING INSTALLED IN OTTAWA

Furnaces in at least 200 buildings in Ottawa have been fitted with oil burning appliances, which will dispense with the use of coal. As many of these buildings are large ones, it is estimated that between 4 000 and 5 000 tons of coal used last year will not be needed or will be available for consumption by others.

Various firms placing these appliances on the market claim to be already behind in orders. Although some public buildings are adopting the device, it is mostly in private homes that it has been installed so far.

SECURE CANADIAN RIGHTS

The Canadian rights in the Allen Hydroautomat, the new automatic self-raising device with which the well-known Canadian writer and engineer, Alan Sullivan, is associated, and described in a recent issue of Sanitary Engineer, are now under option to a Canadian syndicate organized by Major Thomas Moss, formerly of Toronto, and son of the late Chief Justice of Ontario. Arrangements are being made to send a demonstrating plant to Canada and to open an office in Toronto. Its possible application to many problems of irrigation, water supply and the economic pumping of liquids is evoking wide interest. The English plant has been inspected by representatives of a number of governments, including that of British Columbia, who think that the application of its principle may offer a solution of many water problems.

HEATING ENGINEERS RECEIVE CHARTER

The Ontario Chapter of the American Society of Heating and Ventilating Engineers held their first meeting since its organization in the Mining Building, Toronto, when several officers from the parent society attended to give the new branch a send-off.

Mayor Maguire attended the meeting and welcomed the visitors. He told them that they stood for co-operation and that co-operation was being largely practised in Toronto, especially as regarded municipal undertakings.

Officers of the Toronto Chapter were installed as follows:—president, M. F. Thomas; vice-president, H. H. Angus; secretary, A. S. Leitch; treasurer, A. J. Dicksie. The charter was handed to M. F. Thomas by J. R. McColl of Detroit, president of the society. Subsequently addresses were given by Chas. Haynes, Philadelphia, on "Organization;" Prof. L. M. Arkley, on "Our Own Endeavors;" F. R. Still of Detroit, on "Ventilation," and remarks on general topics were read by W. A. Obert, secretary of the society.

CONSTRUCT PIPE LINE IN SUMMERLAND, B C.

Summerland, B. C.—Final arrangements for the right-of-way for the proposed new pipe line between Trout Creek and the reservoir having been completed, the council is making provision for the starting of the work of laying the pipes. Some 3,350 feet of twelve inch and 925 feet of eight inch pipe will be ordered. Tenders are being invited for the digging of the trench and backfilling. There are places along the route where the pipe must be kept above the existing surface in order that it may not be below hydraulic grade and these sections of the pipe will be covered by the municipal employees as directed by the engineer in order to assure that frost will not reach the pipe. With this new pipe the heavy annual expense of keeping the reservoir filled during the winter will be eliminated.

BRISK SALE FOR HEATERS IN KINGSTON

Kingston, Ont.—"It's an ill wind that blows no person good," says an old adage, and it applies to the current sale here of heaters. The cool weather and the scarcity of coal has resulted in a brisk demand for heaters and dealers report a good business. Oil and electric heaters are being put out in goodly numbers. The first of the coal supply is expected to arrive the latter part of this week, but citizens are not taking any chances and are installing heaters. In addition to the heaters many citizens are having oil burners installed. Citizens in general are endeavoring to get along with heaters for a couple of months until the real cold weather sets in. Wood is coming into the city in large quantities, but is selling as high as $16 per cord and is very expensive burning at this price.

PEAT AS A FUEL

Ottawa.—Peat, as a domestic fuel, is rapidly becoming a commercial fact. At least, that is the conviction of Hon. Charles Stewart, Minister of Mines, on his return from an inspection of the government plant at Alfred, Ontario.

Cost is the crucial point in the manufacture of peat fuel, Mr. Stewart pointed out. This is being solved by the substitution of labor-saving machinery.

Scientific tests have shown that 1.8 tons of peat are equal in heating value to a ton of anthracite. While not recommended for use in the furnace in the coldest weather, it is described as a good furnace fuel for use in the fall and spring months, and also for use in kitchen ranges and fire places.

When a Dog's a Dawg

Small Girl, at charity fair—"Ain't that a nice dawg?"

Duchess of Dingdon, owner of the animal—"It's a dog, child; not a 'dawg'."

Small Girl—"It's awfu' like a dawg, ain't it?"

Must Improve Sanitation in East St. John

Suburb of St. John, N.B., Under Fire of Board of Health—Sanitary Conveniences in Bad Shape Must be Attended to Immediately

EAST ST. John, a suburb of St. John, N. B., has been under the fire of the Board of Health. This body says that lack of sewerage in this locality will have to be remedied, as it is a menace to health. The conditions brought about by the lack of sewerage in East St. John were severely censured at a meeting of the Board of Health held this week. The subject had been previously discussed at a former meeting, and the matter had been brought to the attention of the municipality, but no action has as yet been taken. Officials reported that sewage from the houses was running into the ditches and that in consequence the provincial authorities refused to clean the ditches. It was decided to make a survey of all premises in the built-up section of East St. John, with a view to ascertaining what unsanitary conditions prevail there, and then to lay the matter before the municipality once more. One case of typhoid has already been reported from that district and conditions were such that typhoid was rather to be expected. Reference was made to the fact that if a plebiscite is taken in East St. John, and a majority vote is given in favor of installing sewers by act of legislation the sewerage may be put in.

East St. John is growing very fast, and recently a fine new school building was erected, and it is reported that the lower grades are so crowded that another room in the building will have to be opened and another school teacher engaged. Considering the fact that there are now so many school children in this community, the Board of Health is determined to see the matter through to a satisfactory conclusion.

Dr. H. L. Abramson recently submitted reports of five tests of the City of St. John's water supply. While the tests showed passably good conditions, the board was not entirely satisfied with the report on the water, and felt that there was still room for improvement. The water and sewerage department of St. John will soon be getting ready to cope with the low pressure problem which always exists as soon as the first snap of cold weather sets in. For years past it has been the custom of many of the citizens to leave their taps running to prevent freezing, and it was also discovered that many of the toilets were not in good order so far as the flushing systems were concerned, and that in many cases there was a considerable waste of water. A tour of inspection was made by city officials with the result that many of the property owners were made to sit up and take notice by receiving a communication from the water and sewerage department stating that if necessary repairs were not forthcoming to the toilets, etc., within a reasonable length of time, the water supply would be cut off. This tour of inspection was followed by another tour at a later date for the purpose of ascertaining what repairs had been effected since the notices were sent out. Reports showed that in nearly every case the necessary work had been done, and those who had ignored the notices, when they found that the department really meant business, quickly fell in line.

SOME REAL FISHING

Showing that he is not behind any of his other business associates in respect of "angling prowess," A. F. Passmore, Toronto, is here shown holding a five-pound small mouth black bass which he caught on a recent holiday in Georgian Bay district, where, as Mr. Passmore says, "the Supreme Water Heater Company get their broad ideas for bigger things."

A. F. PASSMORE

SECURE HEATING CONTRACTS

Kingston, Ont.—Boyle & Son, of Napanee, have been awarded the contract for heating and ventilating Deseronto school. They also secured contracts for installing plumbing in the high school at Tamworth, and making changes in heating Bath school, installing combination hot water and warm air.

T

Port Hope Sanit

Vancouver Office:
325 HOWE ST.

Factories:
PORT HOPE, ONTARIO

e Black Death

In April 1665 the Black Death came to London.

Its victims died by the thousands—terror was abroad.

What London suffered from, in the light of to-day's knowledge was

1. Impure Water. *2. Improper Sewage Disposal.*

Today there is no Black Death

Because city dwellers understand the value of pure water and proper sanitary service.

But there is still a great field of effort in the rural districts and the plumber who fails to take advantage of this wonderful opportunity is losing highly profitable business every day.

The first in the field—the pioneer who blazes the trail will reap the greatest reward.

Can we help you in this work?

Mfg. Company, Limited

Head Office:
. BANK BLDG., TORONTO

Winnipeg Office:
405 TRIBUNE BLDG.

Montreal Office:
301 SOUTHAM BLDG.

NEW PLUMBING GOODS

VISE JAW CLAMPS

A set of vise jaw clamps specially designed for use in bench vises or in vise jaws or clamps mounted on milling machines, surface grinders and similar tools, has been placed on the market. Each pair of the set has different sizes of holes, for either square or round stock, so that various sizes of finished stock can be held without marring the surface, when slotting, milling, grinding, threading or other operations are being performed. The two sections of jaw are forced apart when vise is released by action of two springs. Clamps are hardened and ground all over. These sets are designed to take stock from ⅛ to ½ in. in size. They are manufactured by the Milliken Machine Co., West Newton, Mass.

THE ANDREE WRENCH

A new plumbers' tool called the Andree wrench is being made by the Andree Basin Wrench Co., Oak Park, Ill. Although designed specially for plumbers' use, this handy tool is said to be applicable for numerous other uses and is a suitable wrench for mechanics, auto owners, or for any other purpose where a special wrench is required, the construction of which is such as to adapt it for work at close quarters. It is made of drop-forged steel with hardened grip teeth. It is eight inches in length and weighs 14 ounces. The jaw is also reversible for right or left turning. The makers point out that this wrench grips automatically, and no adjustment is necessary. As more pressure is applied, the firmer is the grip. A smaller jaw is also supplied to fit this wrench, thus adapting it for small purposes.

END LOCK STOVE PIPE

The end lock stove pipe is a new line placed on the market by Sheet Metal Producers Co. of Canada, Ltd., River St., Toronto. It is designed in a manner which enables it to be easily put together. The manufacturer states that it is notched and folded at both ends in such a way as to leave a lock consisting of the folded edge. This means that the tongue or cleat is double, and will outlast the pipe itself. The makers further state that to set up a pipe, it is only necessary to hook the folded edges together and bend the tongues down on the inside, with the fingers or a pair of pliers.

PIPE WRENCH

A pipe wrench that is simply constructed, light in weight and having great strength, has recently made its appearance on the market. The tool is known as the "Little Giant" and is of the end opening type, which design enables it to be fitted to pipes that would be difficult to work on with side openings. The handle is drop-forged and heat treated, the double central jaw being integral with the handle. The moveable jaw is likewise drop forged and heat treated, while the adjusting nut is of hardened steel. It is claimed that the wrench grips and releases freely in all positions. The moveable jaw may be inserted from either side, the double feature of the fixed jaw adding to the life of the tool. The tool, which is made in 8, 10 14, 18 and 24 in. sizes, is being placed on the market by the Greenfield Tap and Die Corp., Greenfield, Mass.

RUB-A-DUB-DUB

(Continued from Page 16)

necessary for him to go "dirty to his grave."

One morning he startled the family by saying, "Send for a plumber."

"Poor Si," they thought, "the strain must have been too great, his reason was going."

They looked at him and shook their heads.

"Do you hear me," he yelled, "send for a plumber."

"Call up the doctor, Mary," his worn wife said to the eldest daughter.

"No!" he roared, "no doctor,—a plumber dammit—plumber, plumber, PLUMBER!"

To humor him they did as they were bid.

When the plumber came, Si ordered him to close the door, and for two hours the worried family listened to an indistinct "buzzing" behind the closed door. They were completely at sea—they couldn't understand it at all.

Finally the door opened and the plumber emerged smiling. Si looked concerned but happy.

"To-morrow sure," was Si's parting shot to the plumber.

"Right you are," replied that worthy.

The family asked no questions nor did Si offer to enlighten them.

Sure enough back came the plumber "to-morrow." He had an armful of books and circulars, and once again he and Si held a lengthy discussion behind closed doors.

That was the last of the plumber for about a week.

But things began to happen then. First a gasoline engine arrived. Then came a big tank with a bundle of long thin pipe. Then a few days later came some more pipe and fittings of various kinds. Before the week was out three or four men describing themselves as "journeymen and helpers," arrived on the scene, and acted as if they were going to be steady boarders for a while.

A couple of foreign looking gentlemen turned up one morning and started to dig holes, and long trenches in the ground, under the direction of a man who carried a big blue paper in his hand, and who seemed to be a sort of "master of ceremonies."

Then the neighbors began to gather round, and look on and wag their heads sympathetically.

"Poor Si," you could almost hear them say. "It is over the Hill for him."

Si's wife was nearly beside herself. She went to a neighbor's and gave the doctor a "hurry-up" call.

The doctor came, looked around in a surprised sort of way, then smiled and went in to see Si.

Si made him close the door.

When the doctor came out still smiling, the worried wife could only say, "Well?" in a trembling voice.

"He's getting on fine," the doctor replied. "Nothing to worry about."

The poor wife was more confounded than ever. "What could it all mean?" —"Was the doctor's reason also departing?"

But like all mysteries the plot gradually began to unravel "and oh the joy" when the light finally broke in on the family.

Just think, foxy old Si had been planning a grand surprise. To mother, it was indeed the happiest surprise of her life.

"What a transformation."

What a monument to their skill had those "journeymen and helpers" left!

True there was a little dint in the bank account, but what was money for anyway?

Shining brass, nickel-plating, glistening enamel and porcelain—how they brightened the old home. But they were not merely ornamental. The comforts they brought were almost unbelievable.

And Saturday night.

"Did I say Saturday night?"

Why almost every night you could hear old Si singing, actually singing "hymns" as he splashed luxuriously in his big enameled tub.

It was the millenium for the Silo family.

And what about the neighbors? Of course they wagged their heads dubiously for a while. Then they began to "take notice." Then one or another would drop in of an evening to see Si, and he would "show them around."

And the way he talked "plumbing" you would imagine he had forgotten all about farming.

But he hadn't. The farm prospered as it never did before. The "family" took a new lease on life and it goes without saying, "they lived happy ever after."

Then the neighbors began to talk—talk plumbing.

"Si is not such a derned old fule after all," was the comment that could be heard all over the "two counties." The pace had been started by Si and soon the plumber was the busiest man in those parts.

No, this is not a "Fairy Tale." It is merely "life"—life on the farm as it is—full of possibilities—not only for the farmer, but for those whose desire it is to become better acquainted with that friend of progress who is always with us, but whom many of us fail to recognize—"Old Opportunity."

Criticizes City's Attitude Toward Plumbing By-Laws

New Set of Plumbing By-laws Would Give Municipalities Splendid Set of Regulations—Should Receive Provincial Sanction in Quebec

QUEBEC City.—Speaking on the subject "Sanitary Plumbing," E. G. Brousseau of Brousseau & Frere, Quebec City, strongly criticized the City Council's adverse attitude towards the proposed Sanitary Plumbing By-law at a recent luncheon of the Rotary Club of that city. The by-law as explained to Sanitary Engineer by Mr. Brousseau is one which will give the municipalities a set of sanitary laws second to none in the Dominion, assuring proper sanitary building laws in every respect. It is the desire of Mr. Brousseau and some of his confederates that not only the City of Quebec adopt the new laws, but that the Provincial Legislature pass same at their next session making it effective in the province as a whole. However, to accomplish this it is realized that civic bodies should endorse it before real headway can be made. Other centres, such as Sherbrooke, St. Hyacinthe and Three Rivers were working for its promotion, and Rotarians, Kiwanis and other clubs and organizations should get behind the movement.

The Rotary had backed two worthy causes, the anti-tuberculosis drive, and the dental Clinic. These two objects have been attained, and now the club should get behind the plumbing improvement with all its force. They would have the assistance of contractors and laborers in general, evidenced by recent resolutions passed in this connection. Following is an editorial appearing in the "Quebec Telegraph" dealing with the matter:

"E. G. Brousseau, one of Quebec's active Rotarians, gave a most interesting recital at the Rotarian luncheon yesterday, of his unsuccessful efforts to induce the City Council to adopt a set of sanitary laws for the City of Quebec. He said that notwithstanding opposition to the passage of these laws by the labor representative at the City Hall, the local labor associations had not only favored this progressive legislation, but had even passed a resolution at their last convention endorsing them. As we have stated before, there is no element of our population which will benefit more extensively through the adoption of proper sanitary building laws than the working people themselves. They have a great object lesson in the new health system which has been established at Grand 'Mere, and it will probably follow in many other industrial centres, whereby only those who are in the best of health will be given employment. Labor has given too little attention to the health of its bread-winners with the result that frequently they are stricken down with disease and illness which never would have come to them had they adopted ordinary sanitary precautions. Many of our working men's homes are perfectly unsanitary and positive breeders of oftentimes serious diseases. It is Mr. Brousseau's great desire that in the new buildings, whether they are for workingmen or for others, the city should pass upon the sanitary plumbing in order that the health of the inmates of these houses will be protected. It is Mr. Brousseau's desire that the Provincial Legislature should be appealed to, to pass a general provincial law upon the subject, but this, like many other legislative reforms, must first of all come about by a demand upon the Government by the people themselves, in every village, town and city and it is with this object in view that Mr. Brousseau hopes to enlist the aid of not only the Rotarians, and Kiwanians in his excellent object, but all organizations and societies throughout the province. If this were done, this pressure would be sufficient to warrant the Provincial Government bringing in such measures as would compel the municipalities and cities to pay more attention to their sanitary plumbing than is being done at the present time. The first cost would be no greater but the results in improved health would be beyond the value of dollars and cents."

E. G. BROUSSEAU

Sanitary engineer of Quebec City, who has done much to urge better sanitation laws in his city and province. A splendid by-law has been prepared which it is hoped will have province-wide adoption.

QUESTIONS & ANSWERS

OAKUM

Lagasse et Mantha, 365 St. Patrick St., Ottawa, Ont.—Kindly advise us manufacturers of oakum.

Answer.—The Factory Waste & Metal Co., Montreal, Que.; M. Granatstein & Sons Ltd., 486 Wellington St. W., Toronto; John Leckie & Sons, Ltd., Wellington St., Toronto; Scythes & Co., 9 Church St., Toronto.

BATHROOM FITTINGS

Saskatoon Hardware Co., Ltd., Saskatoon. —Kindly advise us the name of a manufacturer of bathroom fittings, such as soap holders, towel bars, etc.

Answer.—The Gendron Mfg. Co., Toronto; The Newell Mfg., Prescott, Ont.

THERMOS HEATING UNIT

Cameron & Leacock, Smith Falls, Ont.—Kindly advise where the Thermos unit or jackets for heating boilers are made.

Answer.—The A. J. La Fay Co., Yonge Street, Toronto

LETTER BOX

APPRECIATES SANITARY ENGINEER

The Editor,
Sanitary Engineer,
Toronto.

Kindly send by return mail, if possible, four copies of the August 1st issue of your magazine. These magazines would be appreciated by the City Plumbing Department of Port Arthur.

L. A. Greene & Company,
Sanitary, Heating & Electrical Engineers
Port Arthur, Ont.

Catalogs and Booklets

PILOT PIPELESS FURNACES

A new booklet, giving a full description of the Pilot Success and Superior pipeless furnaces, is being distributed by the Hall, Zryd Foundry Co., Ltd., Hespeler. This book has a number of attractive illustrations, depicting the various parts and features of the Pilot pipeless furnaces, as well as indicating their practical methods of operation. A copy of this booklet will be forwarded upon request to the manufacturers. They also have a branch office in Winnipeg.

NEW ATLAS BULLETIN

The Atlas Engineering and Machine Co., Ltd., 23 River St., Toronto., has recently published a comprehensive bulletin on hot water heating with the Atlas positive circulator. This work deals with the forced hot water system, which, it is stated, is rapidly becoming more popular. The bulletin shows how the Atlas positive circulator is worked in conjunction with this type of heating. The Atlas Engineering and Machine Co. now have a quantity of these bulletins on hand, and are ready to supply copies to the trade on request.

UBEL SEMI-ROTARY PUMPS

A new folder describing the Ubel British-made semi-rotary pumps is being distributed by the United Brassfounders & Engineers Ltd., of Cornbrook, Manchester, England. Various types are described including the Ubel semi-rotary wing pumps, double-acting pumps, quadruple acting pumps, and double-acting pumps with ball valves. A list of accessories for the Ubel semi-rotary and other pumps is also included. Several illustrations of these products, as well as parts for same, substantiate the other details given regarding sizes, prices and specifications.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

Markets at a Glance

THERE have been more price changes of an upward nature in the sanitary and heating markets during the last two weeks than for some considerable time. The tendency towards increased quotations is still strongly in evidence and all current revisions are those which bring costs to a higher level.

THE budget of advances includes the following items: brass and copper rods and tubing, eavestrough and conductor pipe, ridge roll and valley, local vent, the Jenkins line of gate and straightway valves, and certain tinware and enamel ware lines. Spelter and antimony prices are also climbing in the non-ferrous metal markets, while stove and sink bolts are higher in price, as well as quotations on stove pipe wire and certain types of wrenches.

IN enameled products a firm undertone is reported from a production viewpoint, but rumors that price concessions are still offered for quantity buying continue in evidence. There is also a fairly active trade in closet outfits, with little indication of any revision to higher levels being successful under prevailing conditions.

THE trade outlook in radiators and boilers is described as good. Some further upward revisions are looked for on other lines of compression work, while slight improvement is also recorded in boiler tubes. Soil pipe and fittings continue to reflect the strength of basic elements, and cotton wastes are materially improved by the relative rise in raw cotton centres.

THERE is a very firm tendency in various iron and steel products and it is stated that some higher prices on wrought piping and kindred lines would not be surprising. Pipe fittings are described as firmly entrenched at the recent increased levels. The general feeling in bar iron is that prices have reached their present peak. The sheet markets remain active, with current quotations firm. In scrap materials, some signs of improvement are now recorded.

Montreal Markets

MONTREAL, September 29.—Price changes in an upward direction are again quite numerous on the markets for plumbers' and steam-fitters' supplies. One of the outstanding revisions is an increase in quotations on Jenkins valves. Higher prices again appear on galvanized sheets in most quarters, and stove pipe wire is advanced twenty-five cents per hundred lbs. Stove and sink bolts are also higher in price. To those who carry a line of tinware and enameled ware the announcement of a general upward revision will be interesting. Practically all lines are from five to ten per cent. higher.

COE'S WRENCHES NOW THIRTY PER CENT OFF

Montreal.

Through a revision in discounts, Coe's knife handled wrenches are now quoted at higher prices. Present discount is 30 per cent. off list prices, former discount being 37½ per cent.

VERY FIRM TONE IN WROUGHT PIPE MARKET

Montreal.

Wrought iron and steel pipe is again attracting attention, the market being in a very strong position. Although the present basis on which wrought piping is now selling, list No. 56, was only announced to the trade a few weeks ago, a further revision in an upward direction would not be surprising in the near future. Domestic producers draw attention to the fact that iron pipe has been recently advanced on American markets, while steel pipe is expected to show higher prices in the not far distant future. Demand at the mills in the south has been exceptionally good during past months with deliveries in some instances many weeks behind. Mills locally also report a good movement for this season of the year.

SLIGHTLY IMPROVED MARKET FOR BOILER TUBES

Montreal.

The market for boiler tubes is now said to be in a slightly improved position, demand a little better than during the past summer months, and a strengthening tendency evident in production circles in line with other iron and steel products of this nature. Stocks are now considerably less than formerly, and distributors state that local quotations will in all probability reflect the tendency in primary circles more readily in future. Following are unchanged quotations:

BOILER TUBES

	Seamless	Lapweld
1 inch	19 00	....
1¼ inch	21 00	....
1½ inch	20 00	....
1¾ inch	24 00	....
2 inch	20 00	19 00
2¼ inch	23 00	21 00
2½ inch	26 00	22 50
3 inch	32 00	28 50
3½ inch	37 00	33 00
4 inch	47 00	42 00

STILL NO CHANGE IN BAR IRON PRICES

Montreal.

Local distributors of bar iron and steel products are watching the continued advance in base prices on other domestic markets with interest, but up to the present no change locally has been made. When the variation between these centres and the price locally was pointed out to one large dealer he stated that undoubtedly replacement costs warranted a higher selling figure, but apparently local distributors were willing to sell at little or no profit. Increased prices have been expected on local markets for some weeks past because of the continued firming in production circles, but these have been withheld and even at the present time there is no definite indication in sight of developments in this regard. In the meantime producers state that the undertone of the market remains very firm, so much so that another advance in quotations to the distributing trade is not unlikely at any time. Following are unchanged price levels:

BAR IRON—	
Common bar iron, 100 lbs.	3 15
Refined iron	4 65
Irish finish machinery steel	3 20
Mild steel	3 15
Single reeled machinery steel	5 25
Band steel	3 50
Spring steel	4 75
Sleighshoe steel	3 15
Tire steel	3 35
Harrow tooth steel	3 30
Toe caulk steel	4 05
Mining tool steel, per lb.	0 20½
Black Diamond tool and cast steel, per lb.	0 20½

NOTE—Refined iron is approximately $1.50 per 100 lbs. over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs. extra.

STOVE AND SINK BOLTS NOW HIGHER IN PRICE

Montreal.

An increase of approximately ten per cent. is made in quotations on stove and sink bolts through revising discounts from 70 per cent. to 65—5 per cent. off list prices.

ALSO STRONG TENDENCY IN PIPE FITTINGS

Montreal.

As in the case of wrought piping, fittings have again developed a very strong undertone. Since the revision of two weeks ago when prices in general were brought to higher levels, production costs are said to be steadily on the increase. When discussing a further advance in these products with local manufacturers it was stated that there was no definite indication of such a change at present, but undoubtedly the tendency was upwards. There is a fair amount of business in fittings for this season of the year at the following discounts:

PIPE FITTINGS—

Cast iron fittings	27%
Plugs, cast iron	27%
Do., solid	27%
Do., countersunk	27%
Bushings, cast	30%
Do., malleable	30%
Unions	45%
Flanged unions	27%
Flanged fittings	27%
Dart unions, black, 33	1-3%
Dart unions, galv.	13%
Nipples, ⅛ to 4", close and short	55%
Do., long	60%
Do., 4½ to 8", close and short	45%
Do., long	50%
Couplings, 4" and under	25%
Do., 4½" and larger	5%

Malleable Fittings—

Piece list effective June 1st, 1922. Discount 70 per cent.

FAIR ACTIVITY REPORTED IN RANGE BOILERS

Montreal.

Range boiler quotations remain at the revision of two weeks ago when both the standard and extra heavy were quoted approximately 10 per cent. higher. The movement of these products is slightly improved over the past summer months, building operations of the dwelling house type requiring supplies and a better call for installations in older houses before the colder weather sets in is being felt. The firm position of galvanized sheets and other products entering into the manufacture are said to be maintaining a fairly strong undertone in these goods. List prices with recently revised discounts are the following:

RANGE BOILERS:—

5	Gallon	$13.50
12	"	14.00
18	"	15.00
25	"	16.50
30	"	17.50
35	"	20.50
40	"	22.75
52	"	38.00
66	"	60.75
82	"	74.00
100	"	103.00
120	"	117.00
144	"	164.00
168	"	187.00
192	"	210.00

Discounts, Standard weight, 45 per cent. Extra Heavy, 35 per cent.

INCREASED QUOTATIONS ON STOVE PIPE WIRE

Montreal.

An advance of 25 cents per 100 lbs. is recorded on stove pipe wire, and 18 gauge is now quoted at $8.75, 19 gauge at $9.25 per 100 lbs.

MAY BE HIGHER PRICES ON BOLTS AND NUTS

Montreal.

In discussing the probability of a further revision to higher levels on bolts and nuts with local manufacturers this week it was stated that while there is no present indication that higher prices will be announced in the near future, the undertone of the market has again developed a very firm tendency. Since the last revision, not many weeks ago, costs have materially increased and it is noted that advances have been recorded on American markets. With this tendency continuing it was thought altogether likely that Canadian manufacturers would follow suit. In one quarter it was reported that new higher prices were expected at any time.

FIRM UNDERTONE IN BRASS AND COPPER GOODS

Montreal.

The undertone of brass and copper goods, such as sheets, rods and tubing, is described as firm, strength being added by the improved position of the virgin metal on primary markets. Although the buying movement of copper is limited at present there is a firm tendency both on domestic and foreign markets with a strong outlook for future, especially in the United States where supplies are not as heavy as formerly. It is pointed out by distributors of the finished products that quotations have shown little if any change locally for some time past, and with a continued firming in primary circles, revisions to higher levels would not be surprising. Unchanged quotations are as follows:

	Base.
BRASS—	
Sheets, base	0 24
Rods, base ½ to 1 in., round	0 22
Tubing, seamless, base	0 30
F.o.b.	
COPPER—	
Rods, ½ to 2 in.	0 29
Soft sheets, plain, 16 oz., and heavier	0 30
Plain tinned, 16 oz. and heavier	0 36
Polished, and tinned, 16 oz. and heavier, lb.	0 41
Tubing, lb.	0 41
Tubing, lb.	0 32

Above prices are full sheets and bars. Cut sheets and bars are 5c. per lb. higher.

FIRM UNDERTONE IN SOIL PIPE MARKET

Montreal.

Current quotations on soil pipe and fittings remain at unchanged discounts, with a good volume of trade reported by manufacturers and distributors. Market developments since the last revision was made, such as increased cost of foundry iron and coal, lend a firm undertone to the market, and following prices are again considered firm:

SOIL PIPE—

2 and 3 inch	35%
4 inch	35%
5 and 6 inch	35%
8 inch	net
2 to 6 inch	45%
8 inch	net

GOOD TRADE OUTLOOK IN RADIATORS AND BOILERS

Montreal.

A brisk trade is still reported in radiators and boilers, activity in building circles continuing quite satisfactory. From the present outlook there is every reason to believe that a good call for these products will be felt for the remaining fall and earlier winter months. There is still a very firm undertone in these lines in production circles, but quotations are unchanged as follows:

RADIATORS AND BOILERS—

Radiator list prices are for 1, 2, 3, 4 and 5,-column radiators per square foot.

45 in. to 38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in, $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60. Discount 59% for hot water and 60 per cent. for steam.

Wall Radiators—5 ft. $1.15; 6 ft., $1.10; 7 ft., $1.05; 9 ft., $1.05; 12 ft. $1.05. Discount 56%

Boilers—Round hot water boilers, low base only (high base discontinued); sizes from 0 to 10, 64% off list.

Square or sectional hot water or steam boilers, 15-in., 20 per cent.

For Ontario Government trimmings add 5 per cent.

Square or sectional steam boilerfs, 19 in. to 36 in., 20 per cent.

Square or sectional steam boilers, 19 in. to 36 in., 20 per cent. Ontario Govt. trimmings, 10 per cent. discount.

Round steam boilers, standard trimmings, 28 per cent. off. Ontario Government trimmings, 25 per cent.

All prices f.o.b. Toronto, Montreal, Guelph,

FAIRLY ACTIVE TRADE IN CLOSET COMBINATIONS

Montreal.

Closet combinations remain at former average prices, with the market somewhat unsettled. There is a firm tone in these products in production circles, but from the jobbers' point of view there is little indication that a revision to higher levels is likely. Trade is described as fairly active in proportion to a good amount of building construction. Prevailing quotations are as follows:

	each
CLOSET COMBINATIONS—	
Low down outfits,	
Closet, standard outfit, oak	26 00
Do., post hinge seat	26 20
Do., oak vitro or Pussyfoot	26 00
Do., post hinge seat	26 20
Do., mahogany vitro or Pussyfoot, post hinge seat and cover	28 45
Do., vitreous china, oak post hinge seat and cover	28 45
Do., vitreous china, mahogany post post hinge seat and cover	28 45
Do., white Vitro or Pussyfoot, mahogany post hinge seat and cover	28 70
Do., enamelled iron tank, oak post hinge sea and cover	28 45
Do., enamelled iron tank, oak post hinge seat and cover	28 45
Do., enamelled iron tank, mahogany post hinge seat and cover	28 70
Add for ¾ in valve on supply pipe	1 25
Add for spud	0 60
Add for reverse trap bowl	1 50
Add for syphon jet bowl	7 00
Deduct for supply pipe	0 80
Deduct for floor hinge	0 60
CLOSET BOWLS—	
Richelieu bowl	9 00
Washdown bowl with spud	10 60
Reverse trap bowl with spud	11 35
Syphon jet bowl with spud	17 00
CLOSET SEATS—	
Oak post hinge seat and cover	3 85
Oak wood strip seat and cover	3 50
Mahogany finish post hinge seat and cover	4 05
CLOSET TANKS—	
Low down, oak vitro or Pusysfoot, with fittings, less seat	13 20
White vitro or Pussyfoot with fittings, flush elbow and supply	15 65
Vitreous china tank with fittings, flush elbow and supply	18 00
Enamelled iron with fittings, flush elbow and supply	18 00

JENKINS VALVES ON HIGHER PRICE BASIS

Montreal.

In sympathy with a stronger tendency in the undertone of brass valves the Jenkins line have been advanced approximately ten per cent. Virgin copper, the basic metal in the manufacture of these goods, has displayed a firm market tone for some time past, and this tendency is now assisted by increased production costs in forming higher market values. Quotations on other lines of compression goods are unchanged, and there seems to be some difference of opinions with regard to the future trend of these products. While there is a tendency towards higher prices, the opinion is expressed that price levels will remain unchanged, for the present at least. Following are present discounts:

Compression work, standard	45%
Fuller work, standard	30%
Quick opening compression bibbs	43%
Bath cocks, quick opening	41%
Bath cocks, compression	41%
Basin Cocks Compression	34%
Basin cocks, quick opening	46%
Flatway stop and waste cocks, standard	54%
Roundway stop and waste cocks, st'nd'rd	46%
Brass steam cocks, standard, ¼ in.	50%
Radiator valves, standard	58%
Do., removable discs	58%
Globe, angle and check valves, standard	25%
Gate or straightway	25%
Emco globe valves	33%
Emco check valves	33%
Jenkins globe, angle, check and swing check	10%
Jenkins gate or straightway	16%
Jenkins iron body, globe and angle	5%
Jenkins iron body, gate	25%
Jenkins iron body, globe and angle	15%
N. P. "O" and "S" traps	40%

FIRM UNDERTONE CONTINUES IN ENAMELED WARE

Montreal.

In spite of a firmer tendency in enameled ware products due to the upward swing in basic cost of production, and an effort on the part of the distributing trade in recent weeks to increase prices because present selling prices offer only a small margin of profit, especially when it is found necessary to offer a price concession for quantity, no change is made in local quotations. Average prices are 33-1/3 per cent. off, with an added discount varying on quantity desired, and price shading is by no means uncommon. It is considered unfortunate that such a state continues to exist when building operations are still being carried out extensively with prospects of a busy season for the remaining fall and early winter months. The opinion is expressed that higher prices might hinder trade at the present time, but this is not considered probable by others who point to various other building materials which are still on a comparatively high price basis. Nominal quotations are the following:

ENAMELED WARE—

	1 only	2 only	3 only
Sinks, roll rim—			
18 x 30			$23 00
Sinks, flat rim—			
16 x 24	$ 7 50	$ 7 40	$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in wide			51 40
Bath tubs, 5½ feet			57 10
Lavatories—			
17x19 in. Apron F139 or P4045			15 30
18x24 in. Apron F154 or P3845 or P3847			23 60
18x21 in. Apron F169 or P4205			17 60
17x19 in. Roll rim. F241 or P4345			12 60

Less 33 1-3 per cent

FURTHER ADVANCE IN GALVANIZED SHEETS

Montreal.

Further price increases on the various gauges of galvanized sheets are announced by most distributors. Owing to the fairly brisk seasonal demand and limited stocks, the undertone of this product has been strengthening for some time past. Quotations considerably lower than revised levels are given in a few quarters, but there are very little available stocks reported at these reduced figures. As stated, local stocks are only of moderate proportions and it is evident that some firms are much more fortunate in this regard than others. Shipments from overseas continue to arrive, thus allowing dealers to take care of immediate requirements, but up to the present certainty little or no surplus has accumulated. Importers anticipate speeding-up of deliveries from the English market before the close of navigation, and hope for ample supplies for later fall and winter trade. Following are average quotations:

BLACK SHEETS—

10 gauge, base	4 00	4 50
12 gauge	4 10	4 60
14 gauge	4 20	4 70
16 gauge	4 30	4 80
18-20 gauge	4 55	5 05
22-24 gauge	4 60	5 20
26 gauge	4 65	5 25
28 gauge	4 75	5 35

Sheets, 36" wide, 10c. per 100 lbs. extra.

GALVANIZED SHEETS—

Queen's Head—		
28 gauge	7 25	7 75
26 gauge	7 00	7 50
24 gauge	6 40	6 90
22 gauge	6 05	6 30
18-20 gauge	5 35	5 85
Other Brands—		
10¾	7 00	7 50
28 U. S. gauge	6 60	7 10
26 U. S. gauge	6 30	6 80
24 gauge	6 15	6 65
22 gauge	6 15	6 50
16 gauge	5 85	6 35

Theses prices are for full bundles, an extra charge of from 25c to 35c is made for broken lots. Extra for sheets 3 ft. wide, 28 gauge and 10¾ oz., 20 cts. per 100 lbs. Further extra for sheets 4 ft. wide, according to gauge.

TIN PLATE—Coke

20 x 28 x 100 lb. basis	12 50
20 x 28 IC, 112s	13 00
20 x 28 IX, 112s	15 00
20 x 28 IXX, 56s	9 00
20 x 28 IXXX, 56s	9 75

TERNE PLATE—

20 x 28 IC, 112s	14 00

CANADA PLATE—

Dull, 52s	5 00
Dull, 60s	5 10
Blued ..2s ..5	5 25
Blued 60s	5 35
Welsh, polished, 52s	7 00
Welsh, polished, 60s	7 25
Galvanized, 52s	7 25
Galvanized, 60s	7 75

HIGHER PIG MARKET FIRMS LEAD PRODUCTS

Montreal.

Further strength in lead on primary markets adds a firmer tendency in lead and zinc products. Quotations on ingot lead advanced recently on both European and American markets, this resulting in a substantial increase in local quotations. Spelter is also making further gains, while other metals which enter into the manufacture of these lines are reported on a steady to firm tone. Quotations are unchanged, but following price levels are considered very firm.

LEAD AND ZINC PRODUCTS—

Lead pipe, per 100 lbs. up to 2"	13 00
Do., 2" to 8"	14 00
Do., 8" and over	15 00
Lead waste, per 100 lbs.	14 00
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	15%
Lead wool, lb.	**0 13½**
Lead sheets, 2½ lbs., sq. ft. lb.	0 10½
Lead sheets, 3 3½ lbs., sq. ft. lb.	0 10¼
Do., 4 to 8 lbs., sq. ft., lb.	0 09½
Cut sheets, ¼c. lb. extra and cut sheets to size, ¾c. lb. extra.	
Solder, guaranteed, lb.	0 25
Do., strictly, lb.	0 22
Do., commercial, lb.	0 22
Do., wiping, lb.	0 21
Do., wire, lb.	0 35
Zinc, sheets, casks	0 11
Do., broken lots	0 11½

HIGHER PRICES ON SOME INGOT METALS

Montreal.

Although there is a certain quietness in the ingot metal markets, prices in some instances are somewhat higher, doubtless owing to increased duties in the United States. The war situation, if it shows further development, may also further affect prices to some extent.

TIN.—Fluctuations in this metal have been very narrow, and there is said to be no immediate sign of any change from this tendency. Demand is only moderate and local price is unchanged at 36 cents.

COPPER.—Copper is somewhat dull and producers appear willing to sell over the next few months at to-day's figures. Production is a little heavier and this has a tendency to keep prices down, although the market otherwise is considered in a fairly firm position. Quotations remain at 17¾ cts. for electro, and 17½ cts. for casting.

SPELTER.—The American spelter market is quite firm with spot metal quoted at 6 7-8 cents, East St. Louis, but futures are slightly lower. This advance is said to be partly caused by higher duty, but apart from this the market is firm and on a higher level than the English market. Consumption is fairly good locally with stocks none too heavy. Price is firm at 9 cents.

LEAD.—This market is very strong in the United States, but the London market is a little quieter and Canadian prices are now based on English competition. The higher duty now in force in the U. S. may divert foreign lead to Europe, and this may result in lower prices in future. Local quotation 6¾ cents.

ANTIMONY.—Antimony is firmer owing to the increased duty in the U. S., and stocks have been somewhat depleted. Demand locally is fairly good with markets higher at 7 cts. for Chinese, and 7½ cts. for high grade English.

ALUMINUM.—This market is also a little firmer in the United States, but locally prices have not advanced to the same extent, owing to importation from Europe. Local market is quiet at 22 cents.

Higher Prices on Enameled and Tinware

Price Advances of From Five to Ten Per Cent. on Most Staple Lines—Galvanized Ware Remains at Recent Revision

PRICES on practically all enameled ware and tinware products have been advanced. With few exceptions all lines are now from 5 to 10 per cent. higher, the more staple products showing a price increase of approximately 8 per cent. This is the most general revision made since the announcement in December last year when nearly all products in both tin and enameled ware were reduced in price. Since that date changes of a more minor nature have been made, including a revision to higher prices on certain copper goods early this year and a reduction in galvanized ware in June last. The latter line of products was again revised earlier this month bringing prices to a higher level, and it is noted that these goods remain unchanged at the present time.

Manufacturers point to the higher cost of raw materials, particularly the various sheets used, as responsible for the present revision. The undertone of the market in general has been gradually strengthened by the advancement made in sheet markets. From a production standpoint, the coal situation has a more or less direct bearing on the matter, fuel costs being higher, especially in the more recent weeks.

Following are revised quotations:

WARES—

Tinners' Trimmings, plain, 50 -5 per cent.
Tinners' Trimmings, retinned 40 -12½ per cent.
Tinners' trimmings, general plus 5 per cent.
Sheet iron ware, list plus 10 per cent.
Pieced tinware, list, plus 40 per cent.
Spiders, steel, plus 5 per cent.
Steel Sinks, galvanized, plus 10 per cent.
Steel Sinks, painted, plus 10 per cent.
Light Galvanized Pails and Tubs, 10 per cent.
Heavy Galvanized, Pails and Tubs, 10 per cent.
Paper lined Boards, 35 per cent.
Wood lined boards, 10 -10 per cent.
Stove and other pipe 5 per cent.
Stove pipe elbows, black and galvanized, 10 per cent.
Galv. Coal Hods, list, plus 40 per cent.

VALVES—

	Per cent.
Compression work, standard	45
Fuller work, standard	30
Bath cocks, compression	41
Do., Fuller	25
Flatway stop and wastecocks, stand'd.	54
Roundway stop and waste cocks std.	46
Brass steam cocks, standard ½" to 2"	50
Do., 2½" to 3"	43
Globe, angle and check valves, std.	25
Mueller globe, angle and check	25
Mueller composition disc steam valves	33
J.M.T. valves, screwed	10 10
J.M.T. gate valves, screwed	16 10
Jenkins gate or straightway, screwed	16 10
Jenkins, globe, screwed	10 10
Radiator valves, standard	58
Do., removable disc	58
Emco, J. D., rad. valves, screwed	33
Emco swing check, ⅜" and ½"	40
Do., other sizes	33
Webster gate valves, screwed	33
Emco globe valves, std.	25
Emco globe valves, J.D., screwed	33
Basin Cocks -	
No. 0 and 1 Fuller pattern	30
Quick opening No. 3633	50
No. 3623, plain or index handle	34

Toronto Markets

TORONTO, September 29.—All the market changes recorded during the past two weeks are in the nature of price advances. Higher levels are now in effect on numerous plumbing and steam-fitting materials, including eavestrough and conductor pipe, ridge roll and valley, local vent, brass and copper rods and tubing, while bar iron, stove and sink bolts, antimony and spelter are also included in the lengthy budget of upward revisions.

The wrought pipe market is undoubtedly very firm, but no further changes are reported in sight. Some additional discount changes on companion lines of compression work are being looked for in certain quarters. Cotton wastes, scrap materials, soil pipe and fittings and boiler tubes are among sanitary and heating products now appearing on an improved basis.

FAIR ACTIVITY NOTED IN RANGE BOILERS

Toronto.

Moderate trade is now reported in range boilers, with the recent advance in quotations giving this market an appearance of strength. Quotations on flat galvanized sheets continue very firm, and this trend has a natural effect upon the manufactured galvanized lines in general. Trade in range boilers is described as very fair for this season of the year, with the current movement keeping up well, owing to the improved demand caused through current building activities which are continuing in many quarters in marked degree. The prevailing list and recently revised discounts follow:

RANGE BOILERS—

Size.	List Price.
5-gallon	$13 50
12 to 15 gallon	14 00
18-gallon	15 00
25-gallon	16 50
30-gallon	17 50
35-gallon	20 50
40-gallon	22 75
52-gallon	38 00
65-gallon	60 75
82-gallon	74 00
100-gallon	103 00
120-gallon	117 00
144-gallon	164 00
168-gallon	187 00
192-gallon	210 00

Discounts, Standard weight, 45 per cent.
Extra heavy, 35 per cent.

QUOTATIONS ON STOVE BOLTS NOW ADVANCED

Toronto.

Through a revision in the discount, quotations on stove bolts have been advanced. The new level is 65 and 5 per cent. off, compared with the former quotation of 70 per cent. off. Sink bolts are revised in a similar manner, these also appearing with the new price of 65 and 5 per cent. off list.

QUOTATIONS ON VALVES REGISTER ADVANCE

Toronto.

In accordance with the market report on brass compression goods contained in the last issue of Sanitary Engineer, quotations on the Jenkins line of valves have been advanced approximately ten per cent. The quotations on J. M. T., gate, and straightway valves have also been revised in a similar manner. It is further expected that other makes and styles of compression work will appear with revised discounts in the near future, but no announcement of these pending changes has yet come to hand, Following are current discounts, including new levels, on the lines which have been advanced:

REVISED DISCOUNTS BRING HIGHER TROUGH PRICES

Toronto.

The recent increases in galvanized sheets which constitute the primary element in the production of eavestrough and conductor pipe, have resulted in an advance of ten per cent. in the prices on trough and conductor pipe. Through a revision in discounts, these higher levels are now in effect, developing from the firm tone and strengthened position of the galvanized product market recently noted. Manufacturers and distributors report a brisk movement in these lines at this season, with the aggregate volume of trade being generally on a satisfactory basis. The marked activity in construction circles has been reflected in the seasonal demand for trough and pipe, and with building showing little or no signs of relaxing, the continuance of this movement in eavestrough and similar goods is looked for during the fall period. It is noted that conductor elbows at present remain unchanged. Following are prevailing list prices with revised discounts:

TROUGH (EAVE)—

O. G. Square Bead—

Per 100 ft.		Per 100 ft.	
8 inch	$15 90	15 inch	$28 80
10 inch	17 70	18 inch	36 80
12 inch	21 20		

O. G. Round and Half Round

8 inch	16 90	15 inch	29 80
10 inch	18 70	18 inch	37 80
12 inch	22 20		

Less 70 per cent.

PIPE (CONDUCTOR)—

Plain, round or corrugated.

	Per 100 ft. in 10 ft. lengths.
2 in., in 10 ft. lengths, list	18 40
3 in., in 10 ft. lengths, list	22 30
4 in., in 10 ft. lengths, list	29 60
5 in., in 10 ft. lengths, list	40 00
6 in., in 10 ft. lengths	49 00

Less 70 per cent.

ELBOWS (CONDUCTOR)—

2 inch, list	5 25
3 inch, list	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00

Less 60 per cent.

MORE CHANGES IN PIPE FITTINGS RUMORED

Toronto.

Following the recent upward development in quotations on cast and malleable iron pipe fittings through revised discounts, rumors of another similar pending advance are recorded. The market

is undoubtedly remaining in a strong position, but whether further increases in price will be announced is considered problematic. A firm tone prevails, with the current demand for these products described as good. Seasonal activity is noted in many quarters, but doubt is expressed that the situation warrants additional higher levels. Following are prevailing discounts.

PIPE FITTINGS—	Per Cent.
Cast iron fittings	27
Plugs, cast iron	27
Do., solid	27
Do., countersunk	27
Bushings, malleable	30
Do., cast	30
Unions, ¼ in. to 2 in	45
Do., ⅛ in., 2¼ to 4 in.	45
Flanged unions, std.	27
Flanged Fittings	30
Dart unions, bex., ¼ to 2 in.	34
Do., ⅛ in., 2½ to 4 in.	23
Do., galvd., add to black	30
Nipples, blk., and galvd. ⅛ to 4 in. close and short	55
Do., 4½ in. and larger	45
Do., long, ⅛ in. to 4 in.	60
Do., 4½ in. and larger	50
Do., running thread	35
Couplings, 4 in. and under	25
Do., 4½ in. and larger	5

MALLEABLE FITTINGS—
New piece list, effective June 1, 1922.
Discounts, Class A, less 60 per cent.
Discounts, Class B, less 70 per cent.
Discounts, Class C, less 70 per cent.

SOME PRICE SHADING ON ENAMELED WARES

Toronto.

A very unsettled feeling still exists in practically all quarters of the enameled ware market. While production costs are stated to be distinctly rising, owing to the higher levels of foundry iron and fuel, yet concessions for quantity purchasing of such products as sinks, lavatories and baths, continue to be reported It is stated that price shading has become quite common, in fact the recognized thing in some cases where attractive orders are at stake. Other distributors express the opinion that an effort will likely be made in the near future to clarify this situation, and several attempts have been in evidence to maintain uniform levels. There has been no general change in the prevailing quotations, however, and the nominal discount is 33 1-3 per cent. Following are current prices:

ENAMELED WARE—			
Enameled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.			51 40
Do., 5½ ft.			57 10
Lavatories—			
17x10" Apron F139 or P4045			15 30
18x24" Apron F154 or P3845 or P3847			23 60
18x21" Apron F169 or P4205			17 60
18x21" Roll Rim, F197, F199 or P4655-6			15 40
17x19" Roll Rim, F241 or P4345			12 60
Sinks, Roll Rim, 16x24 in.			18 10
Do., 18 x 30 in.			23 00
Do., 20 x 30 in.			24 70
Sinks, Flat Rim—	3 only	2 only	1 only
16x24	$7 60	$7 70	$7 80
18x30	8 50	8 60	8 70
20x30	9 70	9 80	9 90
Above prices, list, less 33 1-3 per cent.			
All steel enamel baths, 4 and 4½ ft.			$14 00
Do., 5 ft.			15 00
Do., 5½ ft.			16 75

Steel bath quotations are net.

SEASONAL TRADE IN CLOSETS STILL NOTED

Toronto

With an unusual amount of both city and rural construction work in evidence for this time of the year, the call for closed outfits and fixtures, is keeping up well. In some sections, the movement is described as spotty, being brisk and quiet by turns. The seasonal demand has been somewhat heavier as well as more spread out during the past few months, and distributors state that general satisfaction is the rule. In some instances, however, rumors persist of price shading among distributors in order to secure attractive purchases, and any such development has a decided tendency to unsettle the trade. Following are unchanged prevailing quotations:

CLOSET COMBINATIONS—	Each
Closet, standard outfit, oak	26 00
Do., with post hinge seat	26 20
Do., mahogany Vitro or Pussyfoot with mahogany post hinge seat and cover	28 45
Do., vitreous china, with oak post hinge seat and cover	28 45
Do., vitreous china, with mahogany post hinge seat and cover	28 70
Do., white Vitro or Pussyfoot, with oak post hinge seat and cover	28 45
Do., white Vitro or Pussyfoot with mahogany post hinge, seat and cover.	28 70
Do., enamelled iron tank with oak post hinge seat and cover	28 45
Do., enamelled iron tank with mahogany post hinge seat and cover	28 70
Additions or reductions to above:	
Add for reverse trap bowl	1 50
Add for syphon jet bowl	7 00
For ⅜ in. valve on supply pipe	1 50
Deduct for supply pipe	60
Deduct for floor flange and bolts	0 60
CLOSET BOWLS—	
Washdown bowl with spul	10 60
Reverse trap bowl, with spud	12 10
Syphon jet bowl, with spud	17 00
"Richelieu" bowl	10 50
CLOSET TANKS, low down, Oak, Vitro or Pussyfoot tank, with fittings, less seat	13 20
White Vitro or Pussyfoot tank with fittings, flush elbow and supply	15 65
Vitreous china tank with fittings, flush elbow and supply	18 00
Enamelled iron tank with fittings, flush elbow and supply	18 00
CLOSET SEATS—	
Oak post hinke seat and cover	3 85
Oak wood strip seat and cover	3 50
Mahogany finish post hinge seat and cover	4 05
Oak Richelieu seat and cover	3 50

BAR IRON BASE PRICE NOW REACHES $3.40

Toronto.

The advance in base prices on bar iron from $3.25 to $3.40 per cwt. has now developed. The new quotation is general on the local market, whereas formerly the higher price had merely appeared in certain quarters. Large buyers, however, can still purchase at $3.35 base. This increase is attributed to the higher levels announced at the mills where producers were faced with the problem of filling old and lower-priced orders under the greatly increased costs which now prevail. One authority expressed the opinion that mills were thus forced to strike an average by selling steel in future at higher prices.

The undertone of the market remains very strong, with a seasonal demand for bar products which is described by warehouses to be quite up to current expectations.

It has been felt for some weeks past that additional advances in bar iron base prices would result as the primary basic elements were recording higher levels and wages at southern steel centres were also advanced. Following are new levels:

IRON AND STEEL—		
Mild steel bars, base	3 35	3 40
Mild steel bands, 3-16 in. base	....	3 90
Bar iron, base	3 35	3 40
Angle, iron base	3 45	3 50
Horseshoe iron	....	3 90
Tire steel	....	3 50
Spring steel	7 00	8 00
Toe caulk iron		4 10
Hoop steel	4 25	4 50
Norway iron		12 50
Sleigh shoe steel	....	3 40
Crucible cast sheet steel		28 00
Mining Drill steel		18 50
Cast tool steel, high grade		30 00
Do., do., Medium		18 00

INCREASED PRODUCTION COSTS ON RADIATORS

Toronto.

With prices on fuel and pig iron now reaching the peak, manufacturers state that production costs of radiators and boilers have consequently risen in proportion. This trend has reflected in a very firm undertone to the current market, but while prevailing trade is reported on a fairly brisk level for this time of the year, no changes are indicated in lists or discounts. The fact that building activities have extended well into the fall season has been reflected in the movement of radiation, although with the approach of the colder weather, a quietness in new buying becomes evident. Following are unchanged local prices:

RADIATORS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60.

Discount on 2, 3, 4 and 5 column standard sizes, 59% for water and 60% for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 51% for water and 52% for steam.

Discounts on 1-column hospital size, water 33%; steam 34%.

Wall radiators—5 ft. $1.15; 6 ft. $1.10; 7 ft. $1.05; 9 ft. $1.05; 12 ft., $1.05. Discount 56%.

BOILERS—

Water:

Round 64% off list. Square 15%. off list.

Steam:

Round 28% off list; Square 15%. off list.

IMPROVED SITUATION ON CORRUGATED SHEETS

Toronto.

While the undertone in the market for corrugated sheets is firm owing to the strong tendency in flat galvanized sheets, there was a certain amount of unsettlement recorded on the local market during recent weeks, and price concessions offered on the lighter gauges, The continued stronger tendency in the market for flat sheets and the steady seasonal activity on the local market, however, have already improved the situation and distributors now state that with a continued strengthening in the market, prices should at least be maintained at a uniform level with even higher prices probable. Following are average quotations:

CORRUGATED SHEETS—	Per 100 Sq. Ft.
No. 28 gauge	6 50
No. 26 gauge	7 00
No. 26, U. S. gauge	8 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50

Less 10 per cent.
Lighter than 24 gauge and wider than 27 inches, 75c. per square extra.

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ANNOUNCEMENT

The Imperial Radiator Company, Limited

has acquired plants and equipment of the Former Steel & Radiation, Limited, at St. Catharines and Toronto.

The new company will continue to manufacture the

celebrated

Imperial Line of Radiation
King and Royal Types of
Hot Water and Steam Boilers

immediate delivery of the above lines is guaranteed.

The Officers and Officials of the New Company are:

J. E. McALISTER, President.
E. T. WINGATE, Gen. Mgr.
E. M. STOKES, Secretary.
W. R. BLACKHALL, Consulting Eng.
W. H. DAVIS, Plant Supt.

The Imperial Radiator Company,
Limited
228 St. Helen's Ave.
Toronto - Ontario
Works at St. Catharines

TORONTO MARKETS

(Continued from page 34)

VERY FIRM PRICE LEVELS ON SHEETS

Toronto.

Blue annealed sheets are now higher in price, this development being in accordance with recent increases which are in effect on galvanized and blue annealed sheets. Sheets of all kinds are now in better demand, with the price situation remaining very firm and uniform levels prevailing. Delivery is still hard to obtain and shipments are a number of weeks behind. The mills are reported working to capacity to meet the current demand. Following are representative quotations on the local sheet market:

BLUE ANNEALED SHEETS—

10 gauge, base	4 50
12 gauge	4 55
14 gauge	4 60
16 gauge	4 65

BLACK SHEETS—

18-20 gauge	5 30
22-24 gauge	5 35
26 gauge	5 40
28 gauge	5 50

A charge of 25c per 100 lbs. is made for less than case lots. An extra 10c per 100 lbs. is also charged on sheets 26 in. wide.

	Queen's Head
28 gauge	7 75
26 gauge	7 50
24 gauge	6 90
22 gauge	6 55
18 and 20 gauge	6 05

	Premier and	Apollo
10¾ oz.	7 15	7 65
U. S. 28, base	6 75	7 25
U. S. 26	6 45	6 95
22 and 24	6 30	6 80
18 and 20	6 15	6 65
16	6 00	6 50
12 and 14	5 85	6 35

An extra is now charged on galvanized sheets, 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20 cents per 100 pounds. Other gauges show no change for different widths.

An extra 40 cents per 100 lbs., is charged for Keystone and Premier brands copper-bearing sheets.

STEADY TREND IN LEAD PRODUCT PRICES

Toronto.

Prices on lead and zinc goods generally remain at a steady level, there being no variation since the last general revision. Quotations in primary metals have shown signs of minor fluctuation, but these developments have not been of sufficient extent to affect domestic prices on the finished products. On the whole the undertone has remained firm, with the general trend of virgin lead in an upward direction. Tin has been alternately weak, with recoveries. Zinc is experiencing a brisk demand, and such developments are reflected in the maintenance of the following current quotations on lead and zinc goods:

LEAD AND ZINC GOODS—

Lead pipe, list, per lb.	0 13
Lead, waste pipe, list, per lb.	0 14
Do., over 8 in., list, per lb.	0 15

Lead pipe is subject to a discount of ten per cent.

Lead traps and bends less, 15 per cent.

Lead sheets, 4 to 6 lbs., sq. ft. in rolls, lb.

Cut sheets, ½c to ¾c lb. extra and cut sheets to size, 1c lb. extra.

Solder wire, per lb.	0 30
Do., commercial lb.	0 22½
Do., strictly, lb.	0 21
Do., guaranteed, lb	0 24
Do., wiping, lb	0 21
Tinned sheets, per lb.	0 09 — 0 10

JUST FAIR ACTIVITY IN BOILER TUBES

Toronto.

The demand for boiler tubes at the recently advanced price levels is described as just fair by local warehouses. With the approach of the mild weather, however, an improvement in this respect is usually looked for, orders of a sorting nature for repair work being evident. The market is consequently in a slightly firmer condition, as is reflected by the higher replacement values and certain increases in production costs which resulted in the recent revision in domestic prices. There has been no further change and following are current average quotations existing on a market which is generally acknowledged to be nominal:

BOILER TUBES—

	Seamless	Lapweld
¾ inch	19 00	....
1 inch	20 00	....
1¼ inch	22 00	....
1½ inch	24 00	....
1¾ inch	24 00	23 00
2 inch	22 00	19 00
2¼ inch	26 00	....
2½ inch	26 00	22 00
3 inch	32 00	26 00
3¼ inch	36 00	33 00
3½ inch	38 00	32 00
4 inch	55 00	38 00

NO CHANGE IN SOIL PIPE QUOTATIONS

Toronto.

The present position of soil pipe and fittings is described as undoubtedly firm. The rising cost of fuel and foundry iron has placed production costs on a relatively higher level, while the current demand is reported brisk, especially for this season of the year. Fall building activities have kept up in remarkably good volume, both city and country districts taking full advantage of the fine weather in this respect. No further changes have been made in the discounts on soil pipe and fittings since the last general revision. Current quotations follow:

SOIL PIPE—

2 inch	Less 33 1-3%
3 inch	Less 33 1-3%
4 inch	Less 33 1-3%
5 and 6 inch	Less 33 1-3%
8 inch	net

FITTINGS—

2 to 6 inch	Less 45 per cent.
8 inch	net

HIGHER QUOTATIONS ON BRASS AND COPPER

Toronto.

Owing to recent developments in the virgin metals, copper and brass rods and tubing are now advanced in price to the extent of one and two cents per lb. The tone of ingot copper has continued to register strength during recent weeks and this tendency is now reflected in the prevailing quotations on the semi-finished products. No variation is announced on sheets, as an upward revision on these was put into effect a few weeks ago. While virgin copper is now showing some slight signs of weakness, this condition is looked upon as temporary, the statistical position being much firmer than was the case some months ago, when large stocks of scrap copper had to be disposed of. These supplies have now disappeared and with normal requirements being in evidence during the ensuing week, no marked development of an adverse nature is anticipated. The current demand, however, during the winter months for both copper and brass goods, may remain moderate and such quiet conditions tend to detract from the present strength. New local prices follow:

BRASS—

Sheets base, per lb.	0 23
Rods, base, per lb.	0 22
Tubing, base, per lb.	0 30

COPPER—

Rods, base, per lb.	0 30
Soft sheets, plain, 1 oz. and heavier, lb.	0 29
Do., plain tinned, 16 oz. and heavier, per lb.	0 36
Do., polished, and tinned, 16 oz. and heavier, lb.	0 41
Tubing,	0 33

LOCAL VENT PRICES TEN PER CENT. HIGHER

Toronto.

In conjunction with the higher prices announced on trough, pipe, and similar galvanized products, local vent quotations have been advanced to the extent of ten per cent.

COTTON WASTES REFLECT RISE IN RAW COTTON

Toronto.

The cotton waste markets are described as on a steady foundation, the recent upward tendency in raw cotton prices ultimately having a strengthening effect. While no variation in quotations has been announced in wastes, the market is described as steadily stronger, and the improvement in raw cotton circles is expected to be reflected throughout all manufactured cotton and other lines. Following are current unchanged quotations on wastes:

COTTON WASTES—

Cream, polishing	0 18
White, XXX	0 18
XX	0 16
X	0 15
XC	0 14
XXX, extra	0 16
XX, grand	0 15
XLCR	0 14
X, Empire	0 13
X press	0 11½
Colored, No. 1	0 13
No. 17	0 12
No. 1A	0 11
No. 1B	0 10
Fancy	0 13½
Lion	0 12
Standard	0 10½
Popular	0 09
Keen	0 07½

Above lines subject to trade discount for quantity.

SCRAP MARKETS SHOW SIGNS OF IMPROVEMENT

Toronto.

Generally a fair business is being done by local waste material firms, despite the facts that consumers on the whole have continued purchasing according to requirements only and that car and fuel shortage have been conditions to contend with.

Reflecting the upward trend of virgin metals, both lead and zinc scrap quotations are relatively higher this week.

Copper scrap showed every indication of becoming stronger and some fair-

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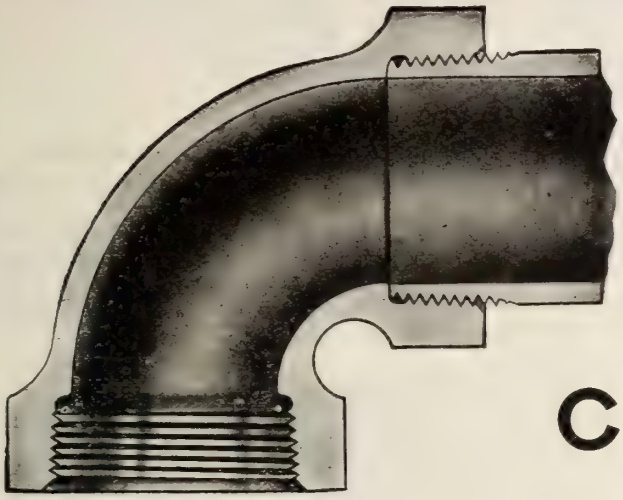

CRANE

DRAINAGE FITTINGS

ARE MADE WITH A SHOULDER AND ARE THE SAME INSIDE DIAMETER AS WROUGHT PIPE.

THE PIPE SCREWS IN UP TO THE SHOULDER MAKING A CONTINUOUS PASSAGE, LEAVING NO POCKETS IN WHICH SOLID MATTER CAN LODGE.

We recommend the use of our drainage fittings for Vacuum Cleaning installations. Fittings that are ordinarily tapped pitched for drainage work can be furnished without pitch to order.

All drainage fittings are recessed to allow easy entrance of the pipe.

Manufacturers of Valves, Fittings and Piping Equipment and Distributors of Pipe, Plumbing and Heating Supplies.

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HALIFAX, OTTAWA, TORONTO, HAMILTON, LONDON, WINNIPEG, REGINA, CALGARY, VANCOUVER.

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TORONTO MARKETS

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sized parcels were disposed of, but it later closed with the market slower and consumers showing no disposition to purchase. Red brass also slumped after having been in fair demand.

Cast iron still continues strong, with an upward tendency. There is an advance in cast iron of $2.00 a ton. This is a notable advance in the market, which was already strong and high. The usual averages of dealers' buying prices for fairly large quantities are as follows:

SCRAP MATERIALS—

Scrap Iron

Gross Tons—		
Heavy melting steel (Hamilton)	$13 00	$13 50
Borings and turnings	6 00	7 00
Rerolling rails	12 00	13 00
Scrap pipe	5 00	6 00
No. 1 railroad wrought	10 25	11 25
Steel turnings (Hamilton)	9 75	10 25
Agricultural malleable	12 00	13 00
Railroad malleable	13 00	14 00
Net tons—		
No. 1 cast	20 00	21 00
Stove plate	16 00	17 00
Grate bars	12 00	13 00
Standard car wheels	15 00	16 00

Scrap Metals

Heavy copper and wire	10 75	11 25
Light copper	9 25	9 75
No. 1 composition	9 00	9 50
No. 1 comp. turnings	7 25	7 50
Light brass	3 50	4 50
Heavy yellow brass	5 50	6 50
Heavy Lead	5 25	5 75
Tea lead	3 25	3 75
Scrap zinc	4 50	4 75

Scrap Rubber.

Boots and shoes	2 00	....
Lumbermen's rubber boots	1 25	1 50
Auto tires	0 25	0 50
Solid tires	0 60	1 00

PRICES ON ANTIMONY AND SPELTER CLIMB

Toronto.

Very little new activity has been manifested in the non-ferrous metal markets during the week. About the same amount of business is moving while prices remain practically unchanged, except in the case of lead and antimony, where slight advances are recorded. Orders are well scattered.

COPPER.—A firm tone prevails in the copper market, with both statistical and commercial positions remaining on the road towards general improvement. There is just a moderate domestic demand, but prices have practically no variation, the local level being unchanged at 17½ cents.

TIN.—Local quotations on tin are slightly higher this week, this change reflecting the recovery recently recorded in primary market centres. It is noted, however, that the current undertone of tin is sagging again, but these fluctuations have not been of marked extent. The new domestic quotation is 36½ cents.

WROUGHT PIPING REMAINS VERY FIRM

Toronto.

The wrought pipe market is described as remaining very firm, but a further upward revision in prices is not yet in sight. There has been noted some shortage in the smaller sizes, but this condition is now reported as improving. List No. 56, which came into effect August 23, still governs the domestic markets.

WROUGHT PIPE

Price List No. 56 August 23, 1922

Standard Buttweld Pipe S/C

Per 100 feet

Size	Steel Blk	Gen. Galv.	Wrot. Blk.	Iron Galv.
⅛ in.	6.00	8.00		
¼ in.	3.96	6.00	7.20	9.30
⅜ in.	3.96	6.00	7.20	9.30
½ in.	5.02	6.55	7.31	8.93
¾ in.	6 10	7.82	8.86	10.70
1 in.	8.50	11.22	12.58	15.30
1 ¼ in.	11.50	15.18	17.02	20.70
1½ in.	13.75	18.15	20.35	24.75
2 in.	18.50	24.42	27.38	33.30
2½ in.	29.25	38.61		
3 in.	38.25	50.49		
3½ in.	49.68	64.40		
4 in.	58.86	76.30		

Standard Lapweld Pipe S/C

Per 100 feet

Size	Steel Blk.	Gen. Galv.	Wrot. Blk.	Iron Galv.
2 in.	22.20	27.75	31.08	37.00
2½ in.	32.76	41.54	46.80	56.16
3 in.	42.84	54.32	61.20	73.44
3½ in.	50 60	66.24	72.68	89.24
4 in.	59.95	78.84	86.11	105.73
4½ in.	68.58	87.63	1.04	1.24
6 in.	1.04	1.32	1.57	1.88
7 in.	1.38	1.79	2.02	2.45
8L in.	1.45	1.88	2.13	2.58
8 in.	1.67	2.16	2.45	2.97
9 in.	2.04	2.62	2.97	3.59
10L in.	1.89	2.43	2.75	3.33
10 in.	2.43	3.13	3.54	4.28
5 in.	79.92	102.10	1.21	1.45

COMPRESSION GOODS—

Globe, angle and check valves	29%
Horizontal, ¼ in. to ¾ in.	40%
Horizontal—1" to 2"	29%
Vertical Check ¼" to ¾"	40%
Gate Valves, ¼" to ¾"	25%
Gate Valves, 1" to 3"	17½%
Handy Gate Valves, ½" to ¾"	25%
Handy Gate Valves ....1" to 4"	12½%
Swing Check, ½ in. to ¾ in.	12½%
Swing Check, 1" to 2"	9%

SOIL PIPE AND FITTINGS IN SEASONABLE DEMAND

Winnipeg.

The demand for soil pipe and fittings is described as quite satisfactory. Prices are unchanged at the discounts quoted. There is a firm tone to the market.

BRISK ACTIVITY IN RADIATORS AND BOILERS

Winnipeg.

Current trade in radiators and boilers continues active. With the fair volume of business done this fall in building circles the movement of these products has been satisfactory. There is no change in quotations.

GREASE CUPS NOW ON HIGHER LEVELS

Winnipeg.

Grease cups have been advanced in price, the extent of this upward development being approximately five per cent.

HOUSE DRAINAGE

(Continued from page 19)

The smoke test is the most convincing. Most plumbers and sanitary engineers possess smoke testers, no description is necessary here, suffice to say that the bellows type is much superior to the fan type. On connecting the smoke machine to the drain and filling the latter with smoke any leaks will very soon show up.

The whole system should be gone over to ascertain where the leaks are, if any, and if the drain is vented it is, of course, necessary to plug the vents to keep the smoke in. Even the most prejudiced party can be convinced that a leak of smoke corresponds to a leak of bad air while if the system is in fair condition these leaks can be put right at small expense. It is usual, however, to find a leaky system leaking badly. Smoke rockets, peppermint (smell) testers are sometimes used. They are not in any way as reliable as the smoke machine, which although not cheap to buy, is a good investment to any go-ahead plumber or sanitary engineer. Not only can bad work be pronounced bad beyond dispute, but good work can be proved good to everyone's satisfaction.

Where the drains are of any length it is necessary to pump smoke into them for some time to ensure that they get well filled and the vents should not be plugged till the smoke issues freely from them.

(To be continued next issue)

Winnipeg Markets

WINNIPEG, September 29.—The outstanding feature of the market for plumbing and steamfitters' supplies has been the advance on valves, injectors and grease cups. Galvanized sheets continue in a strong position. There is a seasonable call for soil pipe and fittings, with the demand for radiators and boilers continuing satisfactory.

PRICES ON LUNKENHEIMER INJECTORS ADVANCE

Winnipeg

An advance has been reported on both Lunkenheimer and Morrison injectors. New discounts are now—Lunkenheimer less sixty per cent. and Morrison less sixty-two per cent.

GALVANIZED SHEETS SHOW FIRM TONE

Winnipeg

There is a firm tone to the galvanized sheet market. The demand locally is fair and Western manufacturers report that there are sufficient quantities on hand to meet the trade's requirements.

QUOTATIONS ON VALVES REGISTER AN ADVANCE

Winnipeg.

There is an advance of five per cent. recorded on Lunkenheimer valves. Globe, angle and check valves are quoted at higher prices. Following are current discounts including new levels on the lines which have been advanced.

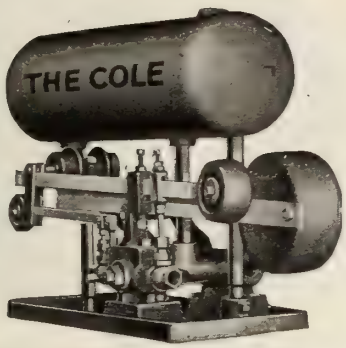
To Make You Better Acquainted

LET US INTRODUCE THE

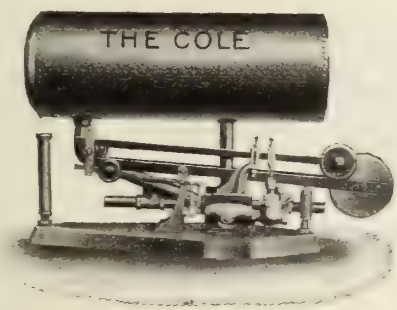
"Cole Family"

HERE THEY ARE

For Standard Low Pressure Steam Heating jobs there is—



The "Lifting Pump" Trap to receive the water of condensation at the lowest point—and raise it up to—



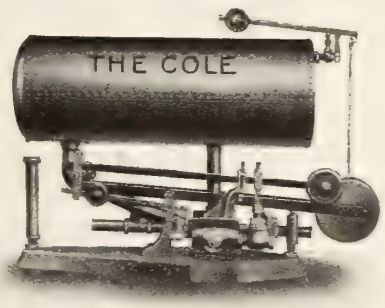
The "Return" Trap which discharges the water into the boilers.

That's all "POSITIVE CIRCULATION" and "GRAVITY RETURN." No necessity to sink the boiler. No unsightly "CEILING RADIATION" necessary. "WATER LINE" cuts no ice in laying out the job.

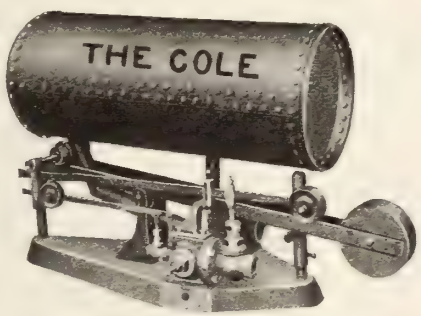
For the factory heating system there is—

The Cole Pressure Reducing and Regulating Valve to give you a flexible control of the steam heat to suit the weather conditions. **"Wide Variations of Pressures."**

"Condenser" Type Lifting Trap

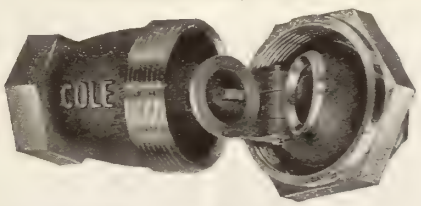


The "Condenser" type of Lifting Trap to pull the vacuum and lift the water into—



The High Pressure Boiler Feeding Trap, which feeds the condensate into the High Pressure Boilers.
Any desired degree of vacuum, and any desired pressure may be carried on the system, and any pressure drop between boiler, engine and heating system can be accommodated. **Any type of Radiator Valve may be used.**

"Cole" Union Swing Check Valve



A "Union" Swing Check Valve, "Straight" or "Elbow" type to be used on branch return lines, and in connecting up the Tilting Traps. "Combination Valve and Union."

There is also the "Three Valve" Trap which is used to balance unequal pressures. We haven't room to show it here, but it's as good as the rest.
We'll illustrate these Traps in action by photographs of the jobs, and give the names of the Steamfitters who have installed them.
We have bulletins dealing with these Traps and Valves. Write us for information and prices, and watch our next advertisement.

GRANT E. COLE CO., 21 RIVER ST. TORONTO, CANADA

Return Traps for All Heating Systems. Union Check Valves. Specialties for Steam Plants.

Ever Hunt Deer?

Probably you found them by their fixed habit of returning to the same place for water at every dawn and dusk, day after day. That's a pretty natural way of finding deer, by going where deer are sure to be.

Twice a month, practically everybody in Canada that is interested in the plumbing and heating trade, goes to Sanitary Engineer in search of the business items, markets and advertising where they find the latest news and newest goods offered in the Canadian plumbing market.

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There is no obligation, no expense attached, in sending for a representative. He will explain this service and point out its advantages to you.

Sanitary Engineer

Plumber and Steamfitter of Canada

143-153 University Avenue,

TORONTO, Canada.

If It's A Warden King It's Just The Thing

For sixty years Warden King Engineers have striven to produce better heating boilers and radiators.

Feature by feature—year by year—the name Warden King has been synonymous with progress in anything pertaining to heating—until to-day the Daisy Boiler is recognized as the finest heating unit on the market.

Are you selling it?

When a better heating boiler is made—
Warden King will make it.

Send us your specifications.

Warden King Limited
MONTREAL

Branch Office: 136 Simcoe Street
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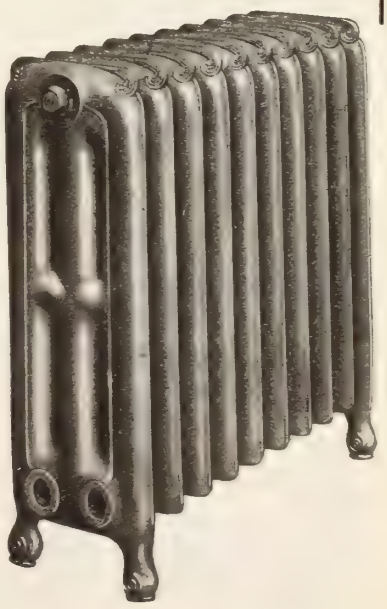

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United Brassfounders & Engineers, Ltd., Manchester, Eng.

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Fittings, Limited, Oshawa.
Canada Metal Co., Ltd., Toronto.

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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
J. H. Wiliams Co., Brooklyn, New York.
United Brassfounders & Engineers, Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.

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Gendron Mfg. Co., Toronto.

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Lord & Burnham Co., Ltd., Toronto.
Spencer Heater Co., Ltd., Toronto, Ont.
Warden King, Ltd., Montreal.

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J. H. Williams & Co., Brooklyn, N. Y.

BOLTS AND NUTS
Fittings Limited, Oshawa.

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Kerr Engine Co., Ltd., Walkerville.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
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Wallaceburg Brass & Iron Mfg. Co., Ltd,. Wallaceburg, Ont.
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Empire Mfg. Ltd., London and Toronto.
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J. H. Williams & Co., Brooklyn, N. Y.

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Port Hope Sanitary Mfg. Co., Ltd., Port Hope.
Standard Sanitary Mfg. Co., Ltd., Toronto.

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United Brassfounders & Engineers, Ltd., Manchester, Eng.
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Fittings, Limited, Oshawa.

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By Sante Bargellini

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Porcelain Enamel Ware
—*Your Guarantee of Quality*—

Beaver Brand Enamelware by its ability to meet the highest demands for service under all conditions, has established itself in the confidence of the public to such an extent that each month witnesses an ever-increasing demand for products of Beaver manufacture.

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Agents :

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Monarch Brass Mfg. Co.
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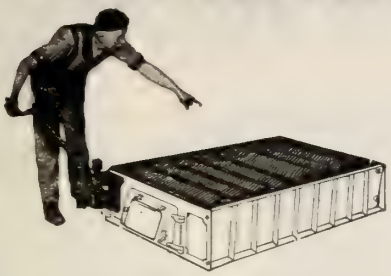
Manitoba and Northwest :
E. B. Plewes
197 Princess St., Winnipeg



The GREAT POINT about
BURNHAM GRATES

The great point is that they operate in two sections—front half and back half. This takes the back "breaks" out of shaking, but puts savings into coal bills. Grates operating half at a time mean that you can have only half a fire when you don't need a whole one.

Send for our booklet about this.

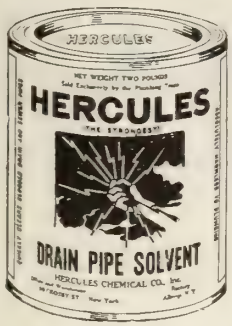
Lord & Burnham Co. Limited of Canada

(BOILER DEPARTMENT)

Harbor Com. Bldg., Toronto.

Burnham Cosy Comfort Heat B B

Factory—St. Catharines, Ontario.



25% Stronger !

Hercules Drain Pipe Solvent by actual tests is the strongest solvent made.

This "extra strength" guarantees more efficient work, quicker results and a saving of solvent material.

No Fumes

Works With Cold Water

Our own sales record to jobbers is proof that Hercules is a universal profit and result producer in the plumbing trade.

Sold at all Jobbers.

HERCULES CHEMICAL CO., INC.,
440 Washington Street, New York City.

W. H. Cunningham & Hill Limited
269 Richmond St. W., Toronto, Ontario
Sole Agents for Dominion of Canada.

JENKINS VALVES

For Plumbing and Heating Service

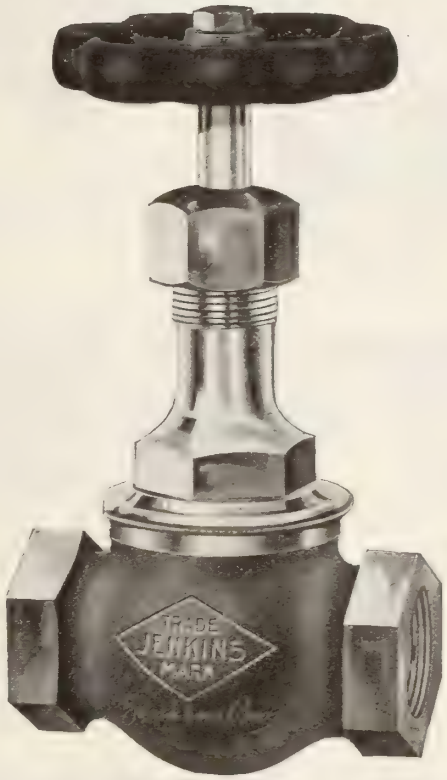


Fig. 106
JENKINS BRASS GLOBE VALVE
Suitable for 150 pounds working steam pressure, 250 pounds working water pressure.

The most dependable valves for good plumbing.

They are dependable because every valve in the Jenkins line is made for maximum service and is **tested for service before leaving the factory.**

Supply houses everywhere carry Jenkins Valves in stock.

Jenkins Valve literature will interest every plumbing and heating contractor. May we mail it you?

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European Branch
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Jenkins Valves
SINCE 1864

Fig. 4950.

Fig. No. 2645.

Indispensable Stock Articles

Wolverine Pipe Joint Cement will make perfect non-leaking joints.

Wolverine Solid Floor and Sectional Floor and Ceiling Plates. Narrow pattern—heavy—durable—highly finished.

Wolverine Air Vents—Metal Wheel—Wood Wheel or Loose Key—always give satisfaction.

It pays to have Wolverine articles on hand for instant use. Order now.

WOLVERINE LIMITED

76 Nelson St. Toronto

Fig. 1676A

Fig. 1674A.

TRIMO

A Winner Always

The "Trimo" Wrench, with Steel Frames, that do not break, and Nut Guards that protect the adjusting nut is a winner.

Has insert jaw in handle, replaceable when worn, saving the handle. A hidden spring always in place. Made in both wood handles and steel handles.

Trimont Manufacturing Co.

Roxbury (Boston), Mass., U.S.A.

CANADIAN REPRESENTATIVE:

George P. Fraser, 28 Temple Ave.

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THE TRADE

Is Respectfully Cautioned

to specify

RIVETED RANGE BOILERS

Made by the old reliable

TORONTO HARDWARE MFG. CO., LIMITED

FITTINGS LIMITED

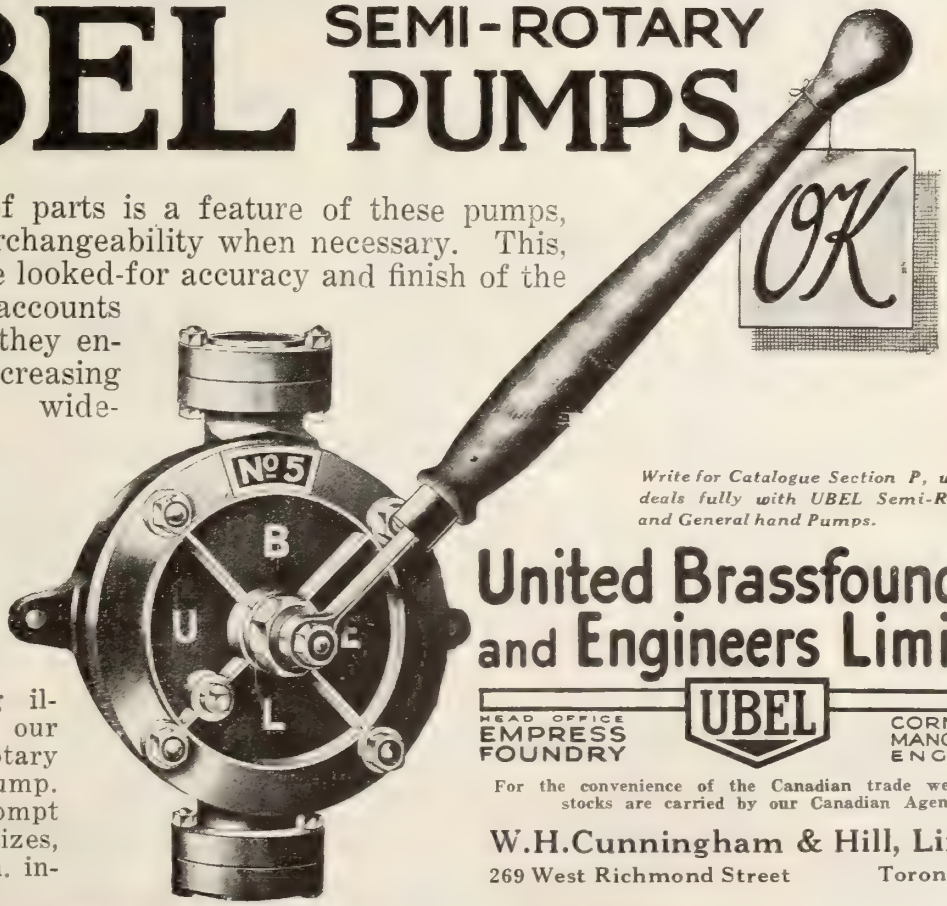
OSHAWA, CAN.

MANUFACTURERS OF

"DIAMOND" PIPE FITTINGS

UBEL SEMI-ROTARY PUMPS

Standardization of parts is a feature of these pumps, guaranteeing interchangeability when necessary. This, combined with the looked-for accuracy and finish of the UBEL product, accounts for the fact that they enjoy an ever-increasing popularity and widespread demand.



The accompanying illustration shows our Fig. P 1 Semi-Rotary Double-Acting Pump. We can give prompt shipment of all sizes, from ½ in. to 3 in. inclusive.

Write for Catalogue Section P, which deals fully with UBEL Semi-Rotary and General hand Pumps.

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For the convenience of the Canadian trade well-assorted stocks are carried by our Canadian Agents.

W.H.Cunningham & Hill, Limited

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USE

TESTED Soil Pipe

IT COSTS NO MORE AND YOU KNOW THE JOB IS RIGHT

Manufactured by

FORWELL FOUNDRY, LTD.

KITCHENER, ONT.

Made in W *Canada*

Better Tools make Better Workmen--

And there are no better tools than WILLIAMS' Hammers. All kinds; all sizes. Catalog on request.

J. H. WILLIAMS & Co., Limited

"The Drop-Forging People."

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When You Cover a Pipe with Ames Holden Hair Felt You've Made a Good Job

The ever compactness of Ames Holden Hair Felt retains the heat better than any other packing, covering.

To retain the heat better — that's what you want—that's what you get with Ames Holden Felt.

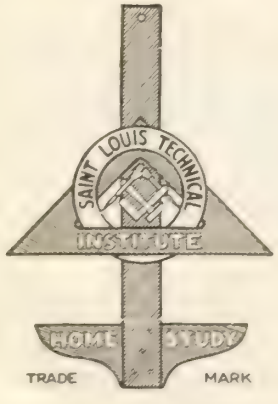
Sold by the square foot.

Send for sample today.

Order direct from us or through your jobber.

Ames Holden Felt Co., Ltd.

KITCHENER — ONTARIO



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We teach you in your own home or office, Clear, Personal, Direct. An Hour a Day will prepare you into a highly specialized Executive. Make ready for the next great prosperous Building wave.

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COURSES IN HEATING AND VENTILATING ENGINEERING

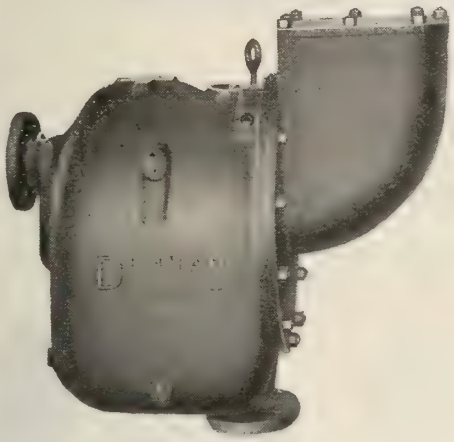
ST. LOUIS TECHNICAL INSTITUTE

4543 Clayton Ave. O. W. Kothe, Prin. St. Louis, Mo.

The DUNHAM
REG. TRADE-MARK
HEATING SERVICE
(Made in Canada)

Handling Condensate

Dunham Return Trap



In buildings of moderate size, janitors or firemen frequently have other duties beside the care of the heating plant. As a rule, pressures are permitted to vary over a considerable range. The Dunham Return Trap proves a very necessary addition to such an installation.

The trap is especially built for low pressure heating service with liberal piping connections, and with no obstruction to the free venting of air from the radiators. Built in three sizes; capacities 3,500 to 10,000 square feet of direct radiation.

Complete data on request.

Principle of Operation

Fills with condensate; steam valve opens, air valve closes, equalizing pressure between boiler and trap; condensate flows back to boiler by its own weight, emptying trap; steam valve closes, air valve opens, permitting free vent of air from radiators as condensate accumulates.

C. A. DUNHAM COMPANY, Ltd.

Toronto Ontario

Manufacturers of a popular line of heating specialties

HALIFAX VANCOUVER WINNIPEG OTTAWA MONTREAL CALGARY
London: 18 St. Thomas Street, S.E. 1

Kerr Steam Radiator Valves

If you want a real high-grade valve made from the best materials, choose one bearing the name "Kerr."

Discs are of special quality and the hand wheels are as good as can be procured.

No possibility of freezing; seats are so located as to prevent the retention of water in the valve around the seat when steam is shut off and condensation takes place.

Make sure of getting satisfaction by buying this valve.

No. 34

The Kerr Engine Co., Limited

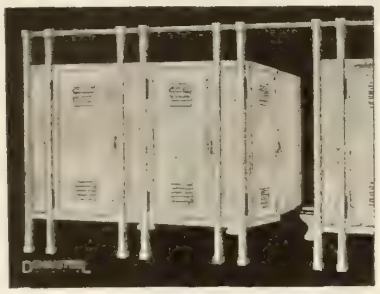
Valve Manufacturers - Walkerville, Canada

Allpriser—
Your Price Clerk

Write for further information

K. B. ALLISON

4 Irwin Ave. - Toronto, Ont.



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Made in Canada

STEEL LAVATORY COMPARTMENTS

For Schools, Factories and Public Buildings.

"Hygienic, Non-Markable, Fire-proof."

These compartments can be finished to harmonize with the most elaborate fixtures and surroundings.

ARMCO

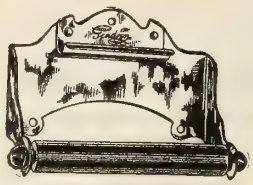
"ARMCO"

Rust-Resisting Iron is used exclusively for "Dennisteel" Lavatory Compartments and Showers.

Write for Folders

THE DENNIS WIRE AND IRON WORKS CO. LIMITED
LONDON
CANADA

There is Good and Profitable Business in Handling



TORONTO Gendron CANADA

Bathroom Fittings and Hardware Specialties

The merchant's margin of **profit** is good.

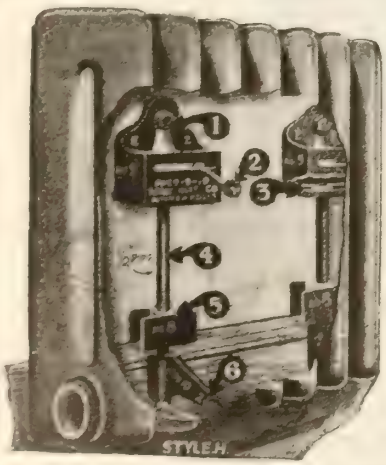
Wherever there is building or remodelling of homes there is a **constant demand.**

You can stake your last dollar on the **quality** of the Gendron line.

When there is constant demand, a high quality line, and a good profit, what remains to be desired?

Our catalogue "G" has the latest reduced prices.

The Gendron Mfg. Co. Limited
Duchess St., Toronto



TRY IT! The E-Z Radiator Hanger

You'll only have to try it once because it always works satisactorily and there is a demand for more all the time.
It hangs radiators securely and is a real device to give a neat and complete finish to the interior of every home.

The E. Z. Radiator Hanger has one Bolt, Invisible Washer, Horizontal Adjustment, Vertical Adjustment, Baseboard Adjustment.

Made for Wall and Column Radiators.

IMMEDIATE SHIPMENTS FROM LARGE STOCK.

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Style "R"

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Quality — The Beaton and Cadwell Mfg. Co. New Britain, Conn. — Service

Gem No. 4.

When You Want an Automatic Air Valve

Choose the Gem No. 4

This automatic air valve is made of the best brass obtainable and is equipped with high-grade carbon. The mechanism is perfect, every valve being guaranteed by us.

Our Ceiling Plate is steadily increasing in popularity partly on account of it being attached to mains and risers at the very last, and is not exposed during compietion of a building on the floors. High quality at the right price.

Write for catalogue showing our complete line of specialties.

The Beaton & Cadwell Mfg. Co.
NEW BRITAIN, CONN., U.S.A.

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The Everlasting Veneer Toilet Seat

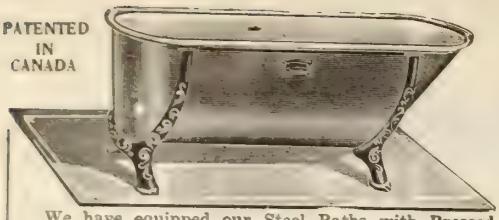
Strong, Clean Hygienic

This reliable, dependable toilet seat is made of 7 and 9-ply, air-seasoned wood veneer, held together by our special wood cement. This cement is proof against heat, cold or dampness. The veneering is distributed according to the strain and wear required of the different parts. The Everlasting Seat will never crack, warp or split.

It is a splendid seat for use in cold damp basements where closets must be installed. The Everlasting Toilet Seat will meet, and successfully resist, these severe conditions of moisture, changing temperature, etc.

Canadian Veneering Company, Incorporated

Acton Vale Quebec



Better Selling Value Than Ever

We have equipped our Steel Baths with **Pressed Steel Removable Legs** and 3 inch **Roll Rim** around the top, for which we have secured a Canadian Patent. This **Roll Rim** adds greatly to the selling value of

TWEED ENAMELLED STEEL **BATHS**

They now look like the expensive cast enamel baths but are the **same price as before.**
Our new patent Roll Rim Enamelled Steel Baths are **now ready** for shipment.—Order samples.

The Steel Trough & Machine Co. Ltd.
Tweed—Ontario—Canada.
Toronto Office: 220 King St. W. Montreal Office: St. Nicholas Bldg.

FARRFHERN ATMOSPHERIC STEAM HEATING SYSTEMS

Are a simple scientific method of circulation, air elimination, and condensation return.
Following natural laws, this is accomplished with a minimum of mechanical equipment.
There are no traps on radiator returns.
There are no air vents on radiators.
Consequently, the contractor is relieved of needless and expensive responsibilities, which will make his Contracts more profitable.
The Farrfhern is a System that eliminates Troublesome come backs, it will create mutual satisfaction.
Send us the plans for your next prospect and submit a proposal for a Farrfhern System on it.

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Plumbers and Steamfitters—

There is only one kind of satisfactory tool and that is one that is in perfect working order. Inefficient tools are a direct liability to you.

Gather up your broken tools to-day, send them to us and we will quickly put them in shape for you.

CANADIAN SERVICE STATION
FOR BEAVER TOOLS

The Pipe Tool and Repair Co.
Adelaide St. W. — Toronto, Ont.

Repairmen to the Canadian Plumber and Steamfitter.

Easier to attach
More permanent
Cost less

Tapped Closet Bend

WROUGHT PIPE

Suitable for the approaching period of building activity, road construction, etc. This is a line of great importance in making successful, profitable contracts. Our C. T. Brand of Wrought Pipe has been

THOROUGHLY INSPECTED

by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes ⅛-in. to 4-in. Black or Galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your Jobber for C. T. Brand Wrought Pipe

Canadian Tube and Steel Products Co., Ltd.
Operating Canadian Tube and Iron Co., Limited
Works at Lachine Canal, Montreal

The Classified Column.

2 Cents a word or figure
Minimum $1.00.

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EXCLUSIVE TERRITORY OPEN FOR LIVE WIRE JOBBERS or agent to handle well-known line of soldering compounds. Box 38, Sanitary Engineer, Toronto, Ont.

CASH IN ON THIS COLUMN

Want to sell your Business?
Want a partner with Capital?
Want some good used equipment?
Want to sell some tools or equipment that you are not using?

Sanitary Engineer's

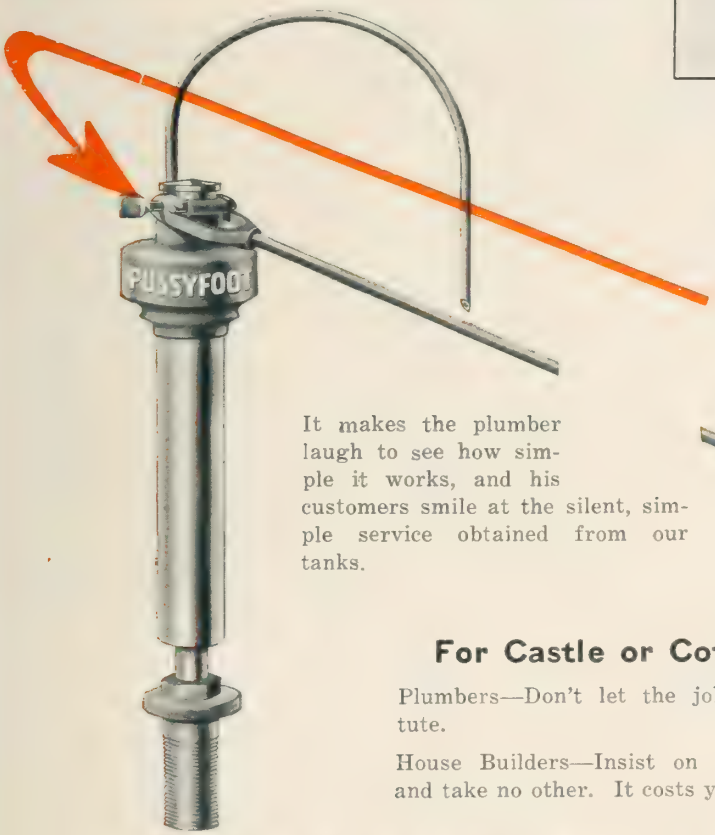
CLASSIFIED COLUMN
WILL HELP SOLVE
YOUR PROBLEM—

SEND ALONG THAT AD TODAY

"Plumbers"——

"Pussyfoot"

Started Right
with
Three Beautiful Designs
and
Sales of 10,000 Tanks
Resulted in the First Year

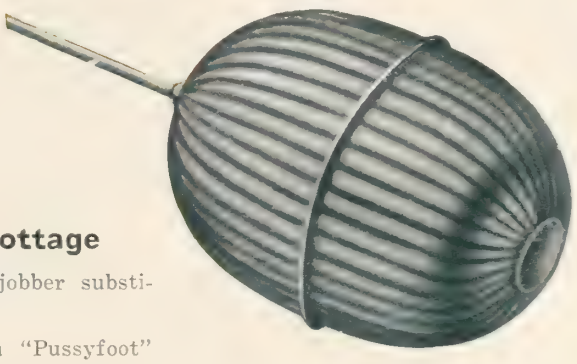


Our New Valve

Silent Simple Serviceable

Is the latest thing in fittings. Not a screw or useless part. Only one bolt; in one moment your valve can be inspected.

It makes the plumber laugh to see how simple it works, and his customers smile at the silent, simple service obtained from our tanks.



For Castle or Cottage

Plumbers—Don't let the jobber substitute.

House Builders—Insist on "Pussyfoot" and take no other. It costs you no more.

THE CANADA METAL COMPANY
LIMITED

Montreal Hamilton TORONTO Winnipeg Vancouver

Appreciation

As makers of quality bathroom fixtures for many years we know a fine piece of work when we see it.

And we knew, when the first 1922 New Design Vitro was completed, that here indeed was a fixture which in beauty and efficiency was the very last word.

But we are mighty glad and proud to have our efforts and beliefs upheld by the plumbing trade and the public at large.

The sale of Vitro in the past six months is concrete, indisputable evidence that those efforts of ours have been appreciated.

Galt Brass Company, Limited

GALT ONTARIO

Every Tank Tested

VITRO
NO TROUBLE
TANK

Every Part Perfect

Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XVI. PUBLICATION OFFICE, TORONTO, OCTOBER 15, 1922 No. 20

CUARANTEED EMCO CLOSET TANKS

The

New "Emco" Tank

Now Ready for Delivery

The outward beauty of the new "Emco" Oak Tank reflects the high grade materials and workmanship which feature all of the concealed fittings as well as the visible equipment.

The graining of the oak finish is as near the natural effect as human hands can make it. When used with our heavy type wash down bowl it verifies our slogan—"An Empire combination is a masterly creation."

Made of a special composition, the tank is proof against rust and decay. The glossy finish is easily kept clean, retaining its freshness indefinitely. Interior fittings are made of best red metal and include our famous Victory ball cock.

Ask your jobber or write direct to us.

Empire Brass Mfg. Co., Ltd.

LONDON and TORONTO, Canada

IN THIS ISSUE—"Living in Harmony with Nature" and "Linking Up with Good Health Week."

Silent

Simple

Serviceable

Every

Tank

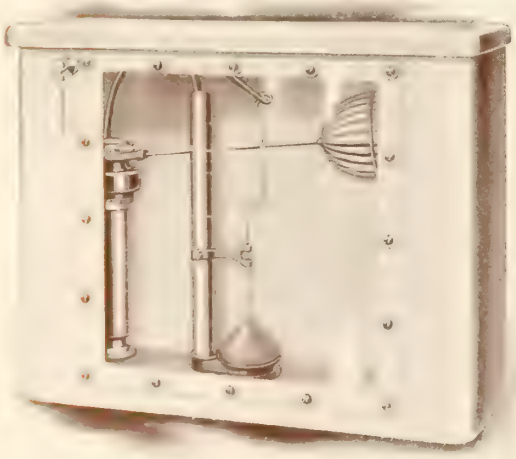
Guaranteed

PUSSYFOOT at the CANADIAN NATIONAL EXHIBITION

was

TRIPPED OVER THOUSANDS of TIMES

And after being subjected to every test by Sanitary Engineers, handled roughly and gently, tried out in every possible way, it was working as efficiently and perfectly at the close, as on the opening day.



The glass front with which one of our Tanks was fitted enabled the entire operation of our NEW VALVE to be seen, and all Sanitary Engineers were unanimous in their expression of approval.

The rapid and silent action combined with the simple method of adjustment, only one screw being employed, was the subject of general comment.

Specify Pussyfoot and take no substitute.

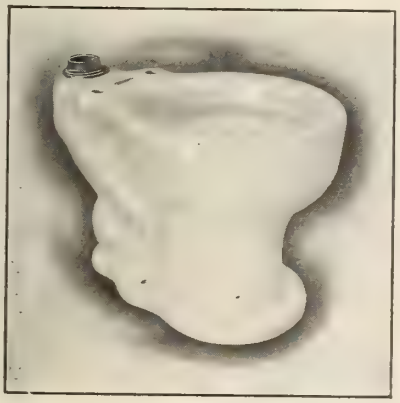
CANADA METAL COMPANY Limited

MONTREAL HAMILTON TORONTO WINNIPEG VANCOUVER

Three Heights In Syphon Jet Closets

No. 25

No. 24



No. 10

"THE BABY"—10″ high.

Our No. 25 has been designed to meet the requirements of a very low closet for kindergartens, orphanages or wherever a closet is needed for very young children. It is so constructed as to have a good large waterway and has splendid strong syphon jet action. It takes a smaller seat than the standard syphon jet.

"JUVENILE"—14¼″ high.

Our No. 24 is a regulation height juvenile closet, taking regular syphon jet seat, and especially suitable for schools or any institution where a closet somewhat lower than the regular type is required. This closet can also be furnished with side supply or raised rear vent.

"LAKESIDE"—15¼″ high.

Our No. 10 is the regular standard height closet, of especially pleasing design, having concealed jet pipes, of very substantial weight and having strong positive syphon jet action. This closet can be furnished also with side supply, raised rear vent, extended or raised front lip, integral seat or combinations of these features.

All these closets are uniformly produced in Canadian Vitreous ware—the most sanitary material of which toilet fixtures can be made.

They are all clay, made by an exacting formula from very finely ground clays and rocks, moulded with infinite care and burned vitreous under an intense heat.

The live-white lustrous glaze surface will not crack, chip, peel, or discolor, and being absolutely non-absorbent, with ordinary care will present after years of use the same attractive freshness as upon the day of its installation.

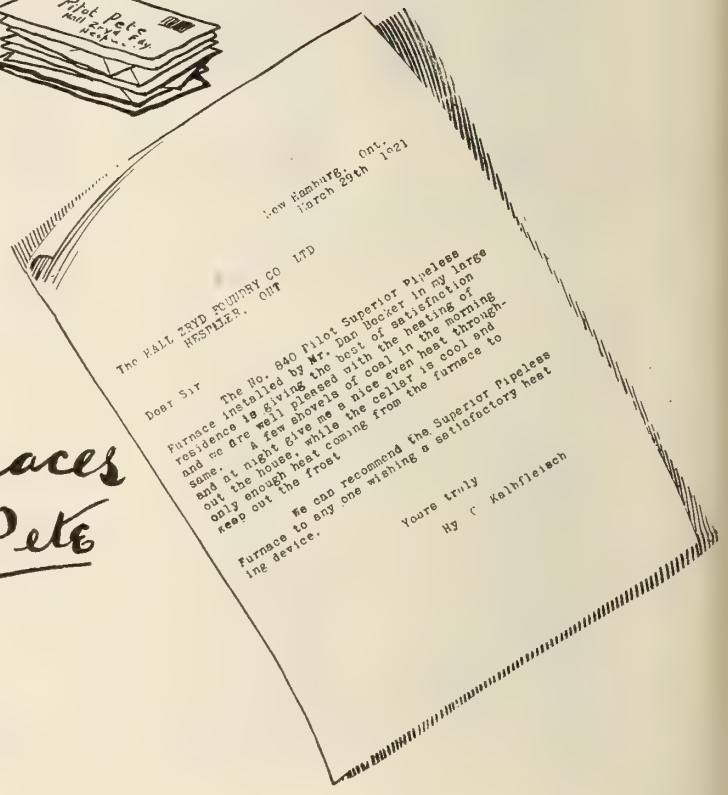
Any of the above closets are made for use with either tank or flush valve—when used with tank we recommend the use of our Canadian Vitreous Tanks, identical in texture with the closet bowls themselves.

CANADIAN POTTERIES
LIMITED

SAINT JOHNS
QUEBEC

Sales handled exclusively through recognized jobbers in plumbing supplies

Pilot Pete



New Hamburg, Ont.
March 29th 1921

The HALL ZRYD FOUNDRY CO LTD
HESPELER, ONT

Dear Sir

Furnace installed by Mr. Dan Hocker in my large residence is giving the best of satisfaction and we are well pleased with the heating of same. A few shovels of coal in the morning and at night give me a nice even heat throughout the house, while the cellar is cool and only enough heat coming from the furnace to keep out the frost

We can recommend the Superior Pipeless Furnace to any one wishing a satisfactory heating device.

Yours truly
Hy C Kalbfleisch

Yours for better furnaces
Pilot Pete

The Hall Zryd Foundry Company, Limited

Manufacturers of Pilot Stoves, Ranges and Furnaces

HESPELER **ONTARIO**

Western Branch: Post Office Box 687, Winnipeg, Manitoba

Opens the Mail

I often find that opening the mail in the morning is the most interesting job of the day—so often it contains a surprise.

And one of the nicest surprises is when a perfect stranger writes telling you what a fine Furnace the Pilot Pipeless is and how well satisfied he has been with its performance.

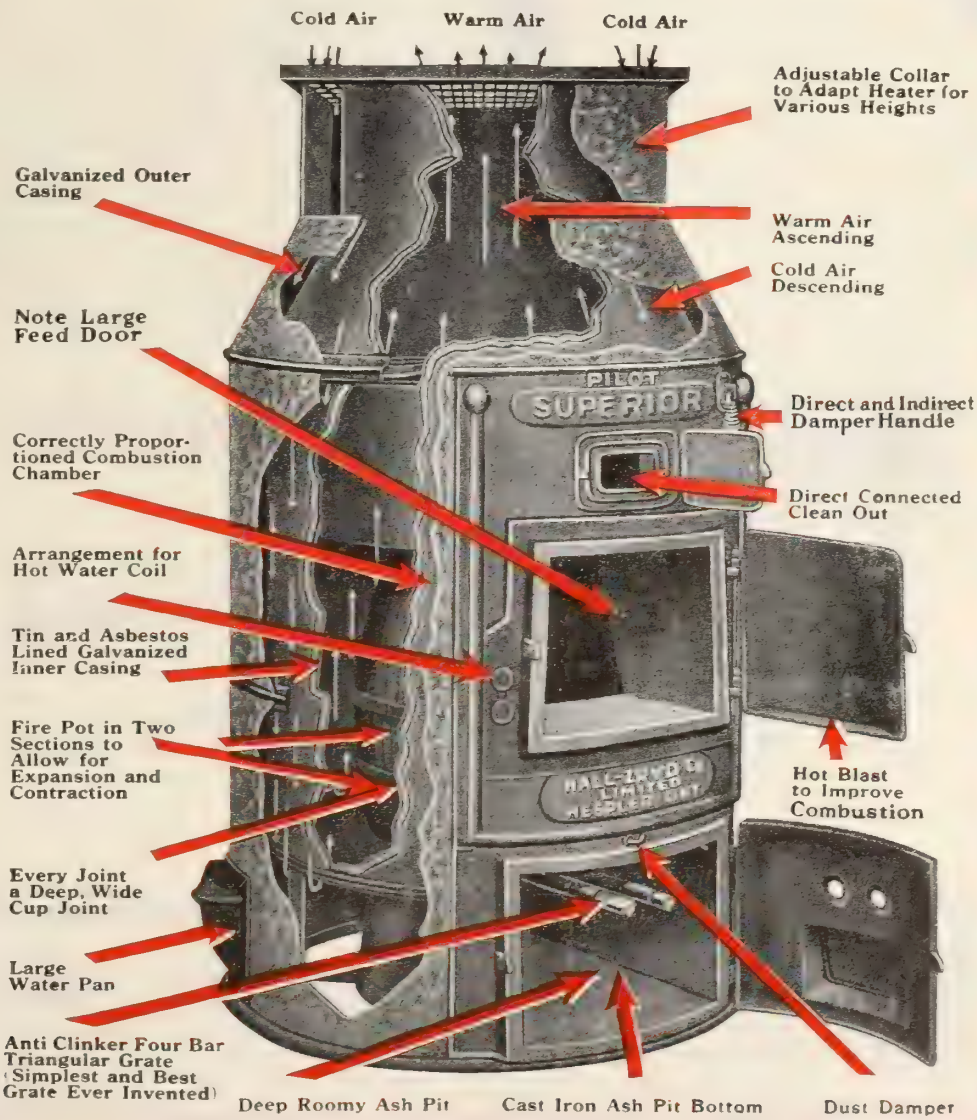
I know all about the merits of the Pilot Pipeless—I ought to—and I know that every one of them must and will give satisfaction, but we all like to be told what good fellows we are and the occasional word of appreciation brightens up the whole day.

Ten years ago I built the first Pipeless Furnace in Canada, and to-day the Pilot Pipeless is still first. In every town in the land to-day there is profitable business to be had selling them.

Write and let me tell you all about our sales plan.

Pilot Pete

Note the 18 features of the Pilot Pipeless illustrated at the right.


Cold Air
Warm Air
Cold Air
Adjustable Collar to Adapt Heater for Various Heights
Galvanized Outer Casing
Warm Air Ascending
Cold Air Descending
Note Large Feed Door
PILOT
SUPERIOR
Direct and Indirect Damper Handle
Correctly Proportioned Combustion Chamber
Direct Connected Clean Out
Arrangement for Hot Water Coil
Tin and Asbestos Lined Galvanized Inner Casing
Fire Pot in Two Sections to Allow for Expansion and Contraction
Hot Blast to Improve Combustion
Every Joint a Deep, Wide Cup Joint
Large Water Pan
Anti Clinker Four Bar Triangular Grate (Simplest and Best Grate Ever Invented)
Deep Roomy Ash Pit
Cast Iron Ash Pit Bottom
Dust Damper

Get Tha

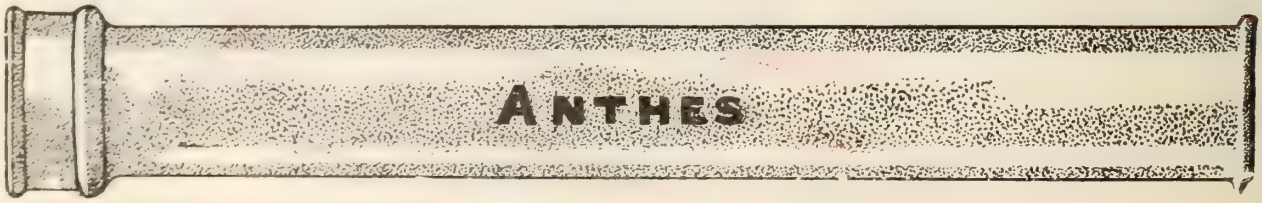
Anthes Foundry

Limited

Toronto and Winnipeg

Manufacturers of

Cast Iron Soil Pipe and Fittings.



Rural Business!

For the Sanitary Engineer who gets busy right away there is yet plenty of time to sell and install sewage disposal systems before winter comes.

And in this autumn time of crisp nights and shivering mornings, the salesman's well thought out story will have a more than usual appeal to farm dwellers.

With its promise of comfort and convenience in the boisterous months to come—freedom from the terrors of a back-yard outhouse on zero nights—more health, more ease and more leisure; what farmer in this prosperous Canada to-day can refuse to install a modern sewage service if properly approached?

The Anthes Syphon is the very heart of such a system. Made of the finest material, it is simple in construction and, built on a natural principle; it operates safely and unfailingly.

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ANTHES

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Costs But Little

In Comparison With its Benefits

Good health also costs but little.

We pay for good health by investing money in preventatives against illness.

Healthy communities are found only where proper sanitation exists.

To the sanitary engineer belongs the task of bringing new, modern sanitary equipment to the homes in his territory.

Standard Fixtures with their fresh, new, white-and-nickel beauty have a powerful allure. It is easy to sell standard ware, easy to stimulate the desire for replacement of old, out-of-date fixtures once your prospect has inspected our line.

And in selling Standard Fixtures you not only get yourself profitable business but you benefit the buyer in making available for him better, healthier, more comfortable living conditions.

Every ten year old house in your locality is a prospect. Ever think of that?

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SANITARY ENGINEER
PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907 PUBLISHED TWICE MONTHLY

Vol. XVI. PUBLICATION OFFICE: TORONTO, OCTOBER 15, 1922 No. 20

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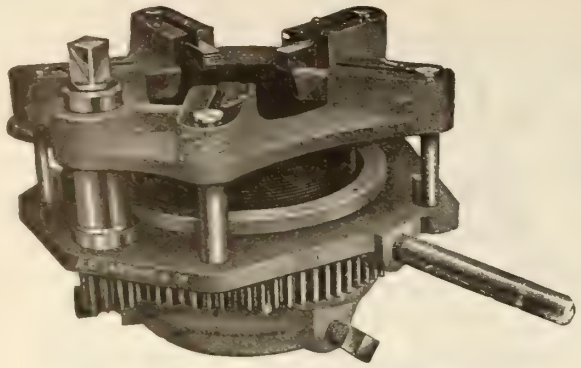

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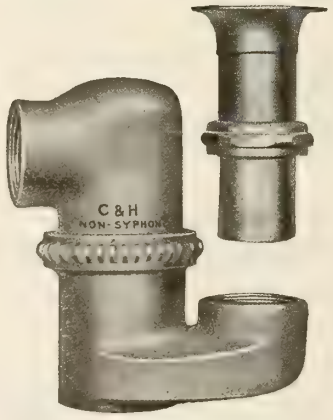

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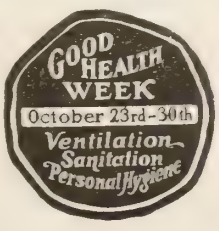
Linking up With National "Good Health Week"---October 23-30

"GOOD HEALTH Week" will be nationally observed in Canada during the week from October 23 to 30. Manufacturers, wholesalers and certain operators have been working in a co-operative plan to make this week a huge success from the standpoint of educating the public in Canada and the United States to a higher regard for the function of sanitary, heating and ventilating equipment and to a higher appreciation of the importance of the qualified tradesman who is engaged in installing such equipment.

This is the first time the industry in Canada has taken part in such a campaign, and it will require the united effort of everyone to put it across. Educational matter is appearing in the newspapers and magazines throughout the country and heating engineers should find a fruitful field for business by linking up closely with this effort by furthering this educational work with window displays, newspaper advertisements and personal effort You know the prospects on your list who will be influenced by this work and it is to the advantage of every operator to see that these prospects are interested in the underlying idea of "Good Health Week."

The committee which is conducting the campaign has interested many provincial health authorities, local club organizations such as the Rotary, Kiwanis, etc., and these clubs in each community will take full charge of the campaign and further its interests by securing speakers. The idea will be featured in the show-windows and advertisements of various merchants for those who have promoted the idea include not only the plumbing and ventilating fields but manufacturers of soap and many other such commodities which have a part in preserving the health of the community.

Newspaper advertising of a co-operative nature among various merchants is prepared pointing to the importance of sanitation and general hygiene. This copy deals with many factors in connection with good health such for instance as the importance of washing the hands in the home, factory, store or school. The Nation Trade Extension of Evansville, Ind. is preparing a layout for a Good Health Week page made up of individual advertisements. It also has prepared suggested individual advertisements, dealing with various lines of sanitary equipment. A reproduction of the seal being used in all literature on the subject is shown in this page. These can be secured direct from the Bureau at 50 cents a thousand and can be placed on bills, letterheads and such literature to good advantage.



Dealing with the possibilities for selling closets during that week, the officials of the Bureau state:

Every plumbing dealer can take advantage of the "National Good Health Week" campaign in a good many different ways. One of them would be to locate every privy that can be found and learn who owns the property. Then send the owner a series of sales letters, urging the advantages of sanitary outdoor or indoor closets.

Wherever you can locate an obsolete insanitary closet, send the owner a series of sales letters, pointing out the dangers of failing to replace it with a modern sanitary fixture. Call his attention to any local or state law that may exist covering such equipment. Do this, however, in a diplomatic way, for the average person does not want to be forced.

Don't overlook the fact that a little selling effort devoted to new closet seats, better tank balls, etc., will often lead to much bigger and better sales. Don't overlook the possibilities of selling flush valves, pressure tank outfits and frost-proof closets.

Be liberal in sending out manufacturers' "envelope stuffers" or other literature, advertising good water closets. Let every letter, statement or proposal—every envelope that leaves your office—carry some of this advertising material.

Use any pretext or reason you think will open the door to your representative. Have one or more house-to-house solicitors make a canvass to get information such as suggested. You can afford to pay such solicitors a moderate salary, a commission on any sale, and make a good profit on their work. Use your journeymen. Show them how they can help you sell goods and at the same time find additional employment for themselves.

Keep a record, and intelligently follow up the information they will bring into the office as a result of their calls. Impress on your employees that a few suggestions imparted to the public from time to time will eventually build up a large volume of business. Remember that a business will grow in proportion to the proprietor's ability in building up a sales organization—for selling is the first essential in business.

The dealer or contractor, who uses the newspaper, movie slides, sales letters, personal canvass and telephone along the lines suggested above will undoubtedly do a profitable business on water closets. He will also find that many other and larger jobs will unexpectedly arise from such efforts.

"Good Health Week" offers the Canadian trade an unique opportunity to crystallize all the effort which has been put forth spasmodically in recent years and to combine it into one real campaign to bring many lukewarm prospects to a realization of their position and to carry out the duty which they owe to themselves and to the community at large by adopting modern sanitary, heating and ventilating conveniences. Secure the co-operation of your local newspaper in printing editorial data on this subject, and cash in on the publicity.

Living in Harmony With Nature

By MAJOR L. L. ANTHES, managing-director, Anthes Foundry, Ltd., Toronto

WHAT is health?

The answer is simple—

It is this: "Living in Harmony with Nature."

But the progress of civilization with the many attendant complications and artificialities that enter into modern life make it somewhat difficult for the man and woman in the street to know just what "Living in Harmony with Nature" means.

When man was placed upon earth the comforts and means of existence supplied him were no more than those provided for any wild animal. He was no doubt "a hairy beast," and kept pretty well to warmer zones, migrating like other animals at the approach of winter.

In spite of his lack of physical comforts, prehistoric man was a hardy beggar; eating, sleeping and self-preservation were his chief responsibilities. He had fresh air at all times, and plenty of uncontaminated water to drink. It was no difficult matter to maintain health for he was "Living in Harmony with Nature."

It is quite possible that he was inclined to overeat at times, but living an active out-door life he overcame the ills that gormandizing leads to.

But with increasing intelligence, and being supplied with a mind that raised him above the wild life surrounding him, his order of living began to change.

His children unlike the young of the lower animals did not develop rapidly, and were indeed still helpless infants long after the young cubs, pups and kittens, born at the same time had rounded out into self-supporting maturity. These helpless humans as they increased made migration a more difficult problem.

First Permanent Habitation

So our early forefather sought out comfortable caves and these became the first human habitations.

He took a lesson from the birds and made his cave more comfortable by "lining his nest." Instead of feathers, leaves and bits of stray hair, he used the skins of beasts which he cunningly trapped and skinned.

As time went on he found that by making clothing of furs and by building fires he could stand a more rigorous climate and the necessity "to keep moving with the weather" was no longer so imperative.

Man being a domestically inclined animal, and always being under the necessity of self-defence, found in time that certain advantages accrued by families "getting together"—hence the start of "little colonies." And with colonies came small problems of "colonial life," such as raising walls of defence and the division of tasks. These called upon man's inventive faculties and inclinations towards organization.

Gradually man's mode of living grew widely different to that of the beasts of the fields and the forests. Finding that his hands could follow the inventiveness of his mind, he began to "fashion" things as his requirements dictated. He made spears for hunting and defence; he found by burning out a tree trunk he could have a boat; he could make snares for fish and animals with thongs cut by sharp stones from the skins of the beasts he had killed; in fact he took a delight in overcoming the simple problems of early community life.

And so I could lead you down through the ages, revealing the successive pages of that most interesting history, "the development and civilization of man"—how each generation added to the artificial aids to comfort and life generally.

Getting Out of Harmony

But all this time man was getting farther away from the mere but important essentials to life. He was straying—straying from the natural path of health,—was ceasing "to live in Harmony with Nature."

"How did he find this out?"

By sickness and great plagues that were beyond his comprehension and his ability to combat.

He was seized with fear—believing that he had offended some Unknown God and sought by charms and sacrifices to appease the "Mighty One."

Then he gradually learned the value of certain herbs and roots and was able to allay some sicknesses.

But still great epidemics would attack his villages and leave death and woe in their train.

Truly man was sorely tried and at his wits end to know how to conserve the lives so precious to him.

Happily there were some "thinkers" among our early forefathers, who found that the study of "conditions" might help them solve the meaning of these visitations of the Grim Reaper who laid so many low.

"And what do you think these 'thinkers' discovered?"

They discovered that man was ceasing "To Live in Harmony with Nature;" that he had been so eager to surround himself with artificial comforts and social pleasures, that he had forgotten what was essential to healthy existence, viz:—Sunshine, fresh air, pure water, moderation in eating, sufficient exercise, and uncontaminated surroundings.

"Did this realization immediately take hold of these towns and villages, and did they all rapidly change their habits of living for the better?"

Alas, no! And would you believe it, there are millions of people living on the earth to-day in spite of our scientists and medical research students who have sacrificed their own lives to benefit humanity; in spite of the millions of pages of literature and propaganda; in spite of the many aids at hand; millions who either do not, or will not, know their existence is a "Continuous Flirtation with Death."

> The outstanding scientific feature of the late deplorable world war, was not so much the numbers who were killed and maimed by modern instruments of warfare, but the comparative few who died of pestilence as compared with previous and lesser wars.

Is this not a wonderful tribute to the men who have earnestly and untiringly striven to combat the evils of filth and disease?

Surely, rigid army discipline should not be necessary to force us to live rationally!

Happily this apathy to healthy environment has been manfully met and fought in enlightened communities all over the world, and many lives have been saved and made happy thereby.

Our children are "Our Most Precious Jewels," and it is gratifying that the necessity of educating them in large numbers has brought about the modern schools of our big cities.

We demand that our children be taught in well-ventilated, bright class rooms maintained at a temperature most conducive to good health and unhampered mental development. Up-to-date sanitary appliances are provided for their well-being, and commodius school grounds with play and drill for their proper physical development. We have

(Continued on page 23)

In linking up with the campaign for Good Health Week and the general installation of modern plumbing and sanitary fixtures, the co-operation of your local newspaper will not only turn public interest in your direction but also bring the benefits of valuable publicity. This can be secured by furnishing suitable editorial matter that may be reproduced, and to this end Sanitary Engineer has arranged to furnish re-prints of this article on "Living in Harmony with Nature," to those desiring copies. It will therefore not be necessary to mutilate your file copies of Sanitary Engineer. Address your request to the Editor, 153 University Ave, Toronto.

Weston Adopts Modern Plumbing Bylaw

Ontario Town Installs New Regulations and Appoints Plumbing Inspector to Secure the Sanitary Conditions of Buildings—By-law No. 176 Contains Interesting Features

AFTER several months' discussion, the town of Weston, Ont., has now passed a modern by-law to regulate plumbing work. A plumbing inspector has been appointed and it is announced that rigid inspections of all works will be made.

A special feature in connection with these new regulations is the system of forms adopted which is calculated to supply a simple and complete record of all plumbing work and also enable officials to control same in an efficient manner. The first is the regular application for a plumber license made to the department of health. When this has been satisfactorily complied with, a license is issued, which bears a number corresponding to the first form. A third form is the application for permission to construct plumbing and drainage; while the permit to do so, followed by the application for inspection, complete the system adopted.

The new bylaw number 176 was first passed upon as an amendment to bylaw No. 592 but after careful consideration the following was put into force as a separate and new bylaw, the old bylaw being rescinded. All new, as well as repair and reconstruction work will require to conform to by-law number 176 which contains 64 sections:—

By-law No. 176, enacted by the Municipal Council of the town of Weston, Ont., Sept. 1, 1922.—"To secure the Sanitary Conditions of Buildings."

1. Plumbing and Drains for Buildings.

It shall be unlawful for any person or persons to do any work in connection with the Plumbing or Drainage of any building within the Town of Weston unless the same shall be in conformity with the following rules, regulations and requirements.

2. Permits for Construction.

Before proceeding to construct, reconstruct, alter or relay any portion of the Drainage, Ventilation, Plumbing or Water System, of any building, Hotel, Apartment House, Private Residence or other building, the owner, or his Agent (in case of Agent his authority from owner) desiring to construct, the same shall file in the office of the Board of Health an application for a permit therefor, and such application shall be accompanied with a specification or abstract thereof in a blank form prescribed and supplied for this purpose, stating the nature of the work to be done, and giving sizes, kind and weight of all pipes. traps, fittings and a description of all closets and other fixtures, and also a plan thereof showing the street and street numbers marked thereon, and the drainage system.

3. Plans, Scale, etc.

All plans must be legibly drawn in ink on heavy white paper or on tracing linen and on a scale of eight feet (8) or four feet (4) to an inch, and such scale clearly marked.

4. Refusal of Permits.

If the Medical Officer of Health finds that the plans and specifications do not conform with this By-law, he shall not issue any permit, and it shall be unlawful to proceed with the work referred to until proper specifications are submitted.

5. Granting Permits.

A permit shall be granted or refused within two days from the filing of application, and if granted shall be only valid for a period of six months from date of issue.

6. Alteration of Plans.

After a plan has been approved including specifications, no alteration or deviation from same shall be allowed without a written application is made by the owner or his Agent, and with the approval of the Medical Officer of Health.

7. Permits Issued First.

No Master Plumber, Journeyman Plumber, drain tile layer, engaged by the owner of any building to construct, re-construct, alter or relay any portion of the Sanitary drainage, piping or fixtures, ventilation or water supply thereof, unless proper permit is granted (see Section 2) by the Medical Officer of Health.

8. Soil Waste and Drain Pipes within Building Walls.

All soil or drainage pipes within the walls of any building shall be of "medium" cast iron and such pipes shall extend to a point not less than three feet outside the walls of the building and all house drains shall be laid in direct line with the hubs of such piping. Any deviation from such line shall be made by using a regular cast iron fitting, a cast iron Y and cleanout screw shall be placed on the inside of the wall, to enable rodding the drain.

9. Vertical Pipes Supported.

All vertical soil, waste, or vent pipe stacks shall be supported on a stone or concrete base. The base fitting shall either be a regular 90 degree cast iron bend, or a Boniface fitting, and, when a Boniface bend is used, no cleanout Y fitting will be necessary. When a regular 90 degree bend is used a cast iron Y fitting and cleanout screw will require to be fitted into the bend mentioned. Cleanout screw must be not less than six inches above floor or basement.

10. Roof Terminals.

All vertical soil, waste and ventilating pipes shall be located on inside walls of a building wherever possible and in every case shall be protected from frost, and all roof terminals of such pipes shall project one inch, and no more, above the highest point where such roof terminals pass through the roof. (See illustration.) The roof fitting shall be so made as to flash roof by turning the sheet lead downward one inch all around inside the top of the fitting and secured with an iron ring. Flashing lead shall be not less than 20 inches square and 5 lbs. to the square foot in weight.

11. Pipe Terminals Near Windows.

When location of bathroom prevents roof terminal from passing through main roof, and such terminal is situated near a dormer or other window or opening, the terminal shall be offset if possible, so as to permit the said terminal to pass through main roof or otherwise it shall be carried to a height of not less than three feet above top of said opening.

12. Horizontal Grade.

All horizontal drains shall be laid with not less fall than quarter inch in 10 feet for four inch pipe, and not less than 12 inches to 60 feet for 6 inch drains.

13. Horizontal Drain for Batteries of W. C.'s.

The above rule also applies where a battery of water closets are installed in schools, halls or public buildings.

14. Batteries of W. C.'s.

Where a battery of W. C.'s. are installed side by side they shall be ventilated on the circuit, or loop venting principle and no W. C. shall enter such horizontal line other than by using a regulation Y fitting, separate vents to each W. C. will not be required.

15. Trap Venting for Residences, Etc.

When a house is fitted with what is known as a regular single bathroom and six-piece viz: W. C. lavatory, bathtub, sink, laundry tub in basement, range boiler and the bathroom is situated on the first floor above the ground floor, there being no plumbing fixtures installed at a higher point, the W. C. need not be vented, provided that such W. C. lead bend and horizontal pipe is not more than 30 inches centre to centre of vertical stack. All other traps shall be vented properly and such vent pipes shall enter the main vertical soil pipe stack not less than six inches above the high water line of the lavatory bowl or other such fixture.

16. Size of Vent Pipes.

No vent pipe shall be less than 1¼" in diameter and where traps are larger than 1¼" the vent pipe shall be no less than one size smaller than trap to which it is fitted. Two inch vents shall be the minimum for W. C.'s and all connections between iron and lead shall be made by using a brass Ferrule if hub connections. If threaded a male or female brass solder nipple must be used, and in both cases the lead pipe and brass fittings must be wiped together with good quality wiping solder.

The cast brass ferrules shall be no less than four inches long and the following weights:

4 in. size, 2½ lbs.
2 in. size, 1½ lbs.

17. Weight of Lead Waste Pipes, Vents and Traps.

No lead waste pipe, vent pipe or lead pipe or lead trap shall weigh less than the following:

1¼ in. inside dia.	7	lbs. per yard.
1½ in. inside dia.	8	lbs. per yard.

2 in. inside dia. 10½ lbs. per yard.
2½ in. inside dia. 13½ lbs. per yard.
3 in. inside dia. 16½ lbs. per yard.
4 in. inside dia. 24 lbs. per yard.

Above weights meaning that the lineal feet of pipe in lead traps shall be equal to above weight.

18. Each Fixture Its Own Trap and Vent.

No fixture shall drain through more than one trap and no vent shall be connected into another vent pipe unless two smaller pipes be connected with one at least one size larger, and all vent pipes shall be either lead, cast iron, brass or galvanized iron pipe, (not steel). No vent pipe terminal shall be less than four inches in diameter.

19. Soil, Waste and Drain Pipes.

All soil, waste and drain pipes placed within any building shall be either cast iron pipe, galvanized wrought iron pipe (not steel), or lead, and all threaded drainage fittings used with galvanized wrought iron pipe shall be clean in the bore, fully recessed so as to ensure a clear straight way through. Steam or hot water fittings will not be permitted for soil waste or drainage purposes.

20. Continuous Vents.

Crown vent will not be permitted and all vents shall continue to rise after leaving the traps and pass out through the roof or connect to main soil or vent stack in as direct a manner as possible to a point above the highest fixture in the building. (See also Section 15.)

When ½ S. or P. traps are used they may be vented by a continuous vent if centre of waste opening is not more than 12 inches from face of finished plaster and not more than 15 inches centre to centre.

21. No Slip Joints or Washers.

No slip joints or Union connections with washers will be permitted on the sewer side of any trap. (W. C. floor flange excepted).

22. Brass Pipe or Tubing.

No brass pipe or tubing used for waste pipes, vent pipes, traps or waste and overflow fittings shall be less than number 19 Imperial gauge in thickness, and all must be properly tapped and threaded.

23. Private Drains on Street Line.

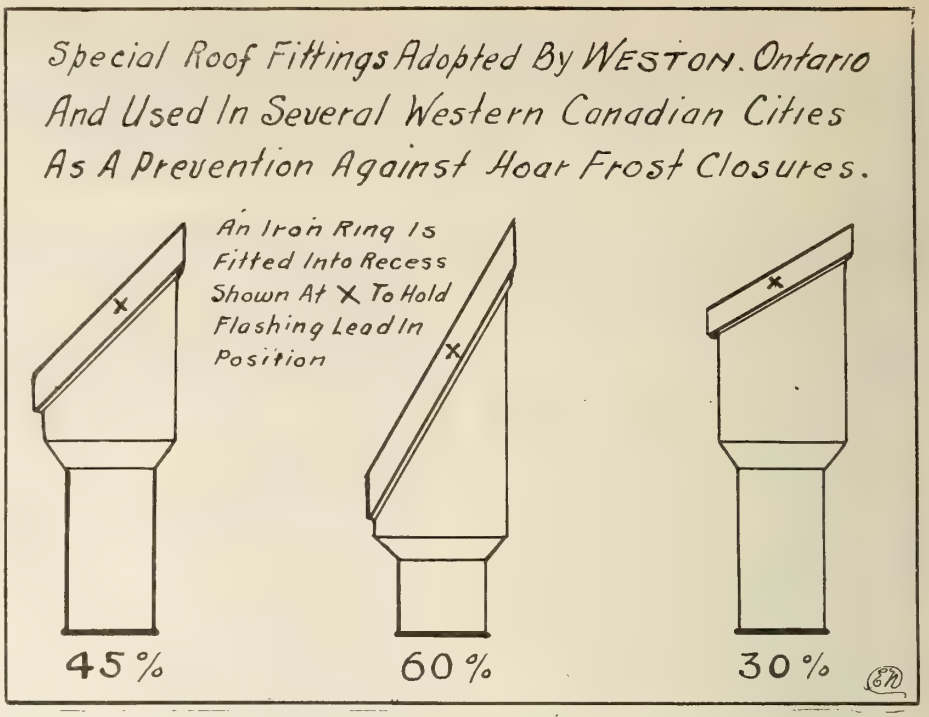
Each house or building must have its own separate soilpipe and house drain four inches diameter. Where no more than six fixtures are installed in a building, and not more than two W. C.'s are included in that number of fixtures. The six fixtures to comprise of two W. C.'s, one double laundry tub, one bathtub, one wash basin, and one kitchen sink, a laundry fixture and sink combined constitutes one fixture and where buildings are situated close to the street line or next to a side walk, the two private drains may be connected into a six inch drain by the use of a 6 x 4 cast iron Y, and a separate screwed cleanout shall be fitted to each drain as it leaves the building.

26. Trap Vents Below Floor.

Where a trap is situated under a floor for such fixtures as floor showers, bath tubs, urinal stalls, etc., the vent taken off such traps or bends shall be extended in the shortest way to the nearest wall or partition, and then carried as high as required above the floor line.

27. Water Closet and Outside Air.

It shall be unlawful to locate or cause to be located any water closet in any sleeping room or in any room or compartment or vault which is not in direct communication with the outside air by means of a window or air space having an area of at least (2) square feet or vertical air shaft having an area of (2) square feet for the first storey and increased ten per cent. for each storey it passes through.



28. Range Closets or Latrines Not Allowed.

No closet or other convenience which allows the escape into the house of air or gas from any part of it, or from the drain or soil pipe connected with it, or which allows any accumulation or filth in or about it, shall be fitted up or used. Range closets or latrines will not be allowed.

29. Septic Tanks.

In cases where a building, school, office, residence, are situated on a street, road or avenue, which is not sewered, septic tanks may be installed upon receiving a special permit from the Medical Officer of Health or the plumbing Inspector. And, such septic tanks shall be subject to conditions imposed by him from time to time, such as cleaning, inspecting, etc.

Plans and blue prints with all the necessary information as to the design, construction and disposal field tile pipe and area will be furnished by the Medical Health Officer or the Plumbing Inspector for which a nominal charge will be made.

30. Private Drains and Floor Drains.

Vitrified salt glazed earthenware drain pipes shall be No. 1 quality for private drains and connections from three feet outside of any building to the point where the drain connects to the sewer in the street. The pipe used for weeping, subsurface or subsoil drainage tiles shall be connected to a rainwater leader on the house side of a cellar floor drain trap, and all surface and floor drains must be trapped and have a rainwater leader discharging through trap used for same. Such trap must in all cases be the same diameter as the drains to which same are fitted.

31. Drains and Buildings on Street Line.

All private drains laid by the Corporation are to be taken to the outside of the wall where buildings are situated on street line, and only two (2) buildings will be allowed to connect with any six inch (6) private drain, except as provided in clause No. 23 of this by-law.

32. Rain Water Leaders.

No rain water leaders or weeping tile pipes shall be connected to any drain pipe or private drain unless same passed through a trap fitted with a hand hole and is placed in an easily accessible location with hand hole carried to the basement floor level and fitted with cast iron grate. See Clause 30.

33. Alterations to Drains.

When alterations are made in any building fitted with, and drained by a tile drain, the same may be used provided such drain is inspected and approved by the Medical Officer of Health, or the Plumbing Inspector.

34. Alteration to Plumbing Fixtures and Trap.

Where plumbing fixtures are already installed in a building and alterations are being made, such fixtures may be re-installed in accordance with the various clauses of this by-law and subject to the approval of the Medical Officer of Health or the Plumbing Inspector.

35. Drinking Fountains.

Drinking fountains, manufactured for this purpose only, placed on wall or pedestal and used for drinking only, may be connected to a rain water leader drain on building side of its trap without having a separate trap and vent; but if connected to a sewage drain, soil or waste pipe, these drinking fountains will constitute a plumbing fixture and shall be trapped and vented in accordance with regular plumbing fixtures.

36. Refrigerator Wastes.

Refrigerator wastes, if drained, shall terminate and discharge either into an open sink which is supplied by public

(Continued on page 17)

Rural Sewage Disposal Systems

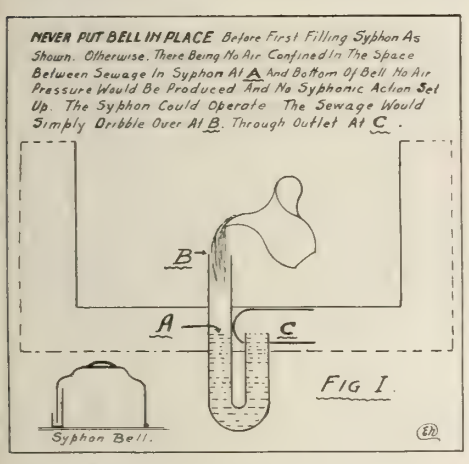
Syphonic Action as Applied to Septic Tanks and the Intermittent Discharge From Dosing Chambers

Written for Sanitary Engineer by EDWIN NEWSOME

THE DISPOSAL of sewage from buildings, whether such buildings are situated in "sewered" districts or not, is one of the most important matters in connection with human progress, cleanliness and good health. In large towns and cities where drainage systems are in use, the final disposal of sewage is a big problem, requiring the abilities of the most skilled men in the engineering profession.

Water is frequently used in too great quantities, thus the sewage does not contain in many instances solids of a nature that will create the necessary amount of bacteria per gallon of fluid.

Then again, it is very often found that water supplies become polluted and chlorine has to be used often in large quantities. And while such precautions are taken by the use of chlorine, it would be much more desirable to keep water free from pollution, rather than first pollute a water supply and then "dope" it.


NEVER PUT BELL IN PLACE Before First Filling Syphon As Shown. Otherwise. There Being No Air Confined In The Space Between Sewage In Syphon At A And Bottom Of Bell No Air Pressure Would Be Produced And No Syphonic Action Set Up. The Syphon Could Operate The Sewage Would Simply Dribble Over At B. Through Outlet At C.
B
A
C
Syphon Bell.
FIG 1.

However, the disposal of sewage as it relates to rural sanitation, and disposal systems for buildings isolated from sewerage systems and where a public sewer or drainage is not available, is the problem receiving attention in this series. To be thoroughly versed on the subject, the operation of a non-mechanical syphon needs to be well understood, along with the reason why syphons should always be used.

The Septic Tank

In the first place it would be well to explain that a septic tank does not dispose of sewage. It is only one of the contributions that form part of a sewage system, and unless every detail is given proper attention, the best designed septic tank can become a menace to the health of those residing in the locality where such a septic tank is situated.

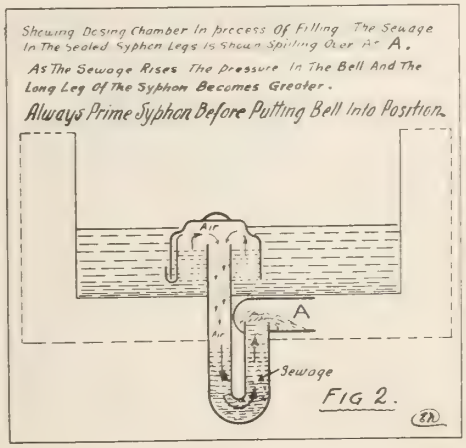
The syphon, too, though the heart of a disposal system, can become non-operative unless certain well established rules and details are followed out.

This is the first of a series of articles specially prepared for Sanitary Engineer by Edwin Newsome, on the subject of Rural Sewage Disposal Systems. Instalments will be continued in following issues. Readers are advised to keep the entire series where it may b studied and used for future reference.

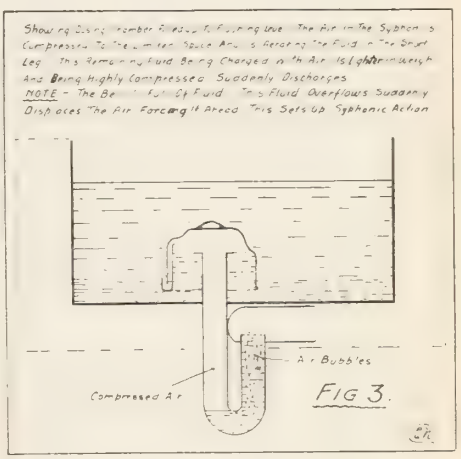
The Syphon Explained

For example, unless a syphon is primed before the bell is placed in position, as shown in accompanying illustrations, it will not automatically discharge. In figure 1, it will be found that unless the syphon trap is sealed before the bell is placed in position, there would be no air confined between the outlet of the syphon at C, and the sewage, as it rises in the dosing chamber (or compartment in which the syphon is always placed). Therefore it is wise not to put the syphon bell in place before first filling syphon as shown in illustration (1), because if the syphon is not so "primed" the sewage will rise until it reaches the point shown at B, and will just dribble over through outlet C. When such dribbling does take place the ground in the near vicinity of the tank gets all the sewage and becomes too wet and putrid. In other words, the ground gets "sewage sick" and polluted, a condition just the opposite to that most desirable.

When the syphon trap has been filled as shown in Fig. 1, it is "sealed, and the bell can now be put in place. The sewage from the first chamber enters the dosing chamber and fills up (Fig. 2). As the sewage rises, the air in the bell, and the top part of the long leg of the syphon trap is confined, and cannot escape. A certain pressure, therefore, is gradually created in the space not containing sewage and the higher the sewage rises, the greater the pressure until the fluid in the long leg is forced up through the short leg as shown in Fig. 2. It will be noted, that as the sewage spills over at A it only partially and gradually reduces the volume of sewage in the syphon legs. And though the volume of sewage is being reduced, the pressure of air is being gradually increased. This may sound somewhat contradictory, but it is nevertheless a fact.


Showing Dosing Chamber In process Of Filling The Sewage In The Sealed Syphon Legs Is Shown Spilling Over At A.
As The Sewage Rises The Pressure In The Bell And The Long Leg Of The Syphon Becomes Greater.
Always Prime Syphon Before Putting Bell Into Position.
Air
Air
A
Sewage
FIG 2.

The small trap shown at the left of the syphon bell, performs an important part. It fills up gradually and does not operate until the syphon has discharged. (This will be explained later).


Showing Dosing Chamber Filled To Flushing Line The Air In The Syphon Is Compressed To The Limited Space Air Is Forcing The Fluid In The Short Leg This Permeating Fluid Being Charged With Air Is Lighter In Weight And Being Highly Compressed Suddenly Discharges
NOTE - The Bell Full Of Fluid This Fluid Overflows Suddenly Displaces The Air Forcing It Ahead This Sets Up Syphonic Action
Air Bubbles
Compressed Air
FIG 3.

Turning to Fig. 3, here we find that the sewage has risen considerably higher than the top of the bell, yet there still remains an air space in the syphon. The sewage has risen up in the bell to the top of the long leg, while the fluid inside has been forced down to the bottom. At this point the air is shown to be compressed to the limit, and is now escaping through the fluid which still remains in the short leg. This fluid becomes lighter, being charged with air bubbles, and as soon as the compression of the air reaches a certain point, it suddenly escapes, and the sewage overflows, filling the long as well as the short leg and the bell to capacity. Thus syphonic action has been set up.

Syphon Discharges

In Fig. 4, it will be noted that the syphon is shown in the operating stage. It is full of sewage and a large quantity of fluid is being discharged. The most popular size of a syphon is 3 inch diam-

eter. The outlet shown at A is four inches, and can be caulked direct with a regular four inch cast iron soil pipe hub. The volume discharged from this size of a syphon is between 80 and 90 gallons per minute, which makes the syphon a very desirable part of a sewage disposal system, because of the fact that discharging such a large volume of fluid in so short a period, ensures the distribution of sewage over a very wide area of ground, through several hundred lineal feet of field tile pipe. And the fact that such a large volume does pass through a syphon in a few moments, makes it necessary that all the pipes and fittings within from 3 to 8 feet of the syphon, shall be cast iron, caulked together in the regular way with oakum and molten lead.

Automatic in Operation

While it was no mean accomplishment to design a syphon that would discharge a large volume of fluid quickly, there still remained another difficulty to be overcome, that of making a syphon which would operate automatically, and without any moving parts.

At first a small hole was drilled close to the bottom of the bell, so that before the fluid got too low, syphonic action would be broken and the bell remain sealed, as well as fluid left in the two legs of the trap. Turn to Fig. 4, and note that were it not for the small trap to the left having its seal broken and permitting air into the syphon, the whole contents of the syphon would be drawn out of the syphon trap. Consequently the condition found in Fig. 5 could not be assured, a condition absolutely necessary in a non-mechanical syphon such as the one being discussed.

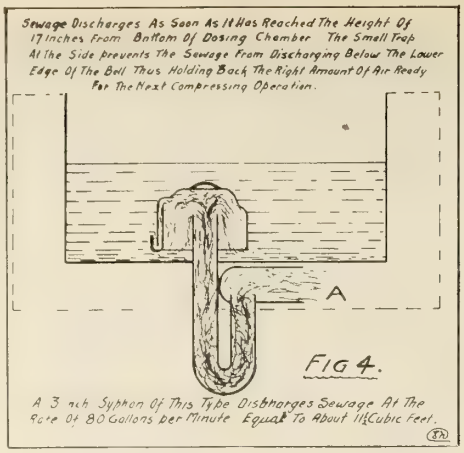
In Fig. 5, the air is shown to be escaping into the syphon bell. This is brought about by the strong suction of the sewage while discharging, and as soon as air is drawn in, the syphonic action is broken and sufficient fluid left to re-seal the two legs and the syphon is ready again for another operation.

Type of Syphon

There have been many types of syphons designed. When a syphon was prepared for purposes other than the intermittent discharge of sewage from a building, the question of height or high water level at which a syphon discharged did not require to be taken into account. But where sewage had to be discharged into a system of field tile and such pipes had to be laid not more than 24 inches below the surface, then the type of syphon had to be considered. And as this series of articles will deal chiefly with sewage disposal, others types of syphons need not be described.

The fact that the type shown in the accompanying illustrations fill all the requirements of a modern rural sewage disposal system makes it necessary to give all the information available.

In the first place a standard 3 inch syphon comprises two pieces only:—the trap and bell, as shown separately in Fig. 1.


Sewage Discharges As Soon As It Has Reached The Height Of 17 Inches From Bottom Of Dosing Chamber The Small Trap At The Side prevents The Sewage From Discharging Below The Lower Edge Of The Bell Thus Holding Back The Right Amount Of Air Ready For The Next Compressing Operation.
A
FIG 4.
A 3 inch Syphon Of This Type Discharges Sewage At The Rate Of 80 Gallons per Minute Equal To About 11½ Cubic Feet.

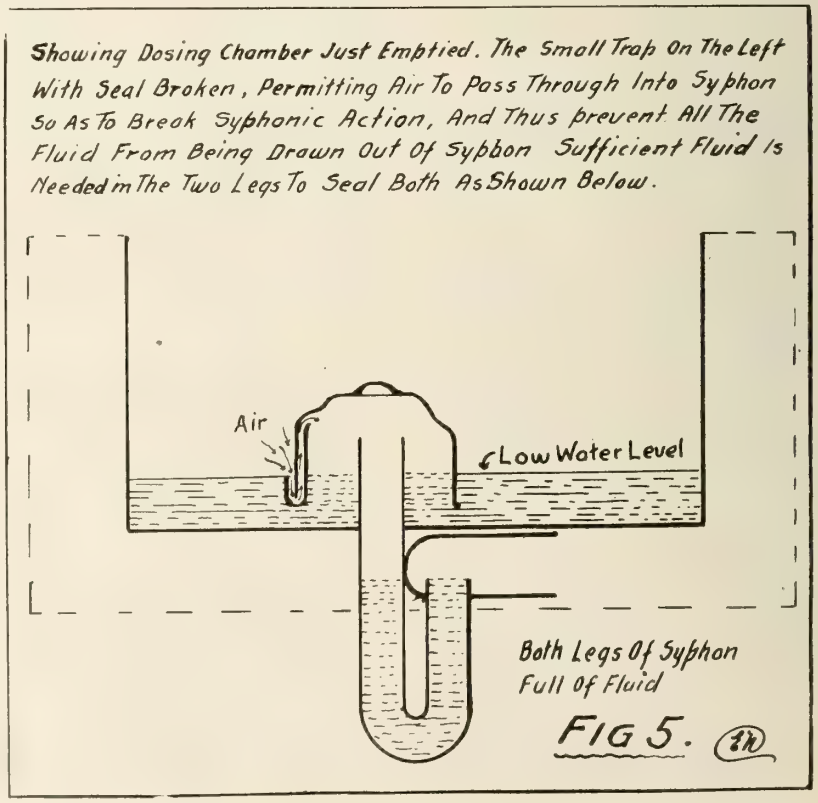
This size and type will discharge as soon as the fluid has reached a height of 17 inches, which height is termed "high water level." And it will discharge all the sewage down to within 3 inches of the bottom of the tank, meaning that the bell is at low water level, submerged in fluid to a depth of one inch. It will thus be seen that a 3 inch syphon discharges one and one-sixth of a foot of sewage in height. As to the length and width of a tank, it does not enter into the actual operation of the syphon. But the height does mean much, and when a septic tank is being designed, there are certain fixed measurements that must be adhered to or the best syphon in the world can be made non-operative. So it must be carefully noted that there are certain fixed measurements and rules that should be followed and these details will be given in future instalments.

CENTRAL HEATING PLANT FOR VANCOUVER

Vancouver.—A central heating plant will be ready for operation in Vancouver before the end of 1923 if the City Council grants a charter to either of the two concerns which have made application. Both companies agree to commence operations as soon as the charter is granted by the city. As both firms submitted new proposals it was decided to ask for another report from G. E. McCrossan, corporation counsel, and F. L. Fellowes, city engineer, before making a final recommendation to the City Council.

It had been found, upon enquiry, stated the communication, that all the material could be secured in Canada or Great Britain. Operations would be commenced as soon as the franchise was granted, and it was guaranteed that two miles of mains would be laid by 1923. Capital would be $1,000,000, in bonds and common stock, issued only as required for construction purposes and working capital. The amount of the deposit to be made as evidence of good faith would be left to the City Council, the letter said.

H. A. Flood of Tacoma, the other applicant, agreed to make a deposit of $10,000, or $25,000, if the city thought the larger sum necessary, as a condition of the franchise, and to place a clause in the franchise giving B. C. products the preference, other things being equal. He stated that as the heating rate would be based upon competition with what the individual plant could do, a reduction to the city for heating civic buildings would result in an increased rate to others, and would, in fact, have the effect of imposing indirect taxation.


Showing Dosing Chamber Just Emptied. The Small Trap On The Left With Seal Broken, Permitting Air To Pass Through Into Syphon So As To Break Syphonic Action, And Thus prevent All The Fluid From Being Drawn Out Of Syphon Sufficient Fluid Is Needed in The Two Legs To Seal Both As Shown Below.
Air
Low Water Level
Both Legs Of Syphon Full Of Fluid
FIG 5.

WESTON ADOPTS MODERN PLUMBING BY-LAW

(Continued from page 14)

water supply or into a regular cellar drain trap used for draining of cellar or basement floor surface.

37. Materials, Weights, Gauge and Quality.

Cast iron pipe used for soil pipe shall not weigh less than the following per length of five feet:

2 inch.	inside diameter	20 lbs.
3 inch.	inside diameter	30 lbs.
4 inch.	inside diameter	45 lbs.
5 inch.	inside diameter	85 lbs.
6 inch.	inside diameter	100 lbs.
8 inch.	inside diameter	167½ lbs.
10 inch.	inside diameter	225 lbs.
12 inch.	inside diameter	270 lbs.

All the above weights of pipe must bear the makers' mark and be qualified as "medium" and shall all be coated with an oil coating by being immersed while hot.

A. All cast iron traps S. and P. and all cast iron fittings must be fitted with standard hubs true to bore and of even thickness and of the same weight per measured foot as the soil pipe mentioned in above table.

B. No wrought iron galvanized pipe shall weigh less than the following per lineal foot:

1¼	inches inside diameter	2.24 lbs.
1½	inches inside diameter	2.68 lbs.
2	inches inside diameter	3.61 lbs.
2½	inches inside diameter	5.74 lbs.
3	inches inside diameter	7.54 lbs.
3½	inches inside diameter	9.00 lbs.
4	inches inside diameter	10.66 lbs.

38. Uniformity of Sizes and Weights.

No soil waste or vent pipes or fittings shall be made of tube, or light weight. Soil pipe to be known as "medium" and all hubs of uniform size to fit each other. No lighter weight brass or lead than stated in this by-law will be permissible.

39. Uniformity of Material.

When a system is to be installed for soil and waste pipe, it must be either cast iron soil pipe and fittings, entire galvanized, but must not be part galvanized. Wrought iron pipe or cast iron pipe.

40. Not to Connect to W. C. Bend.

The waste pipes from bath tub, lavatory or any other fixture shall be connected into a separate branch fitting in the vertical stack and under no consideration shall it be connected to the lead bend of a W. C.

41. Soil Pipes Must Be Increased One Size.

No soil pipe of 4 inches in size shall receive or have connected to it the discharge of more than four floors of any apartments or flats building; each floor must not contain more than two W. C.'s, two baths, two basins, two sinks, and two sets of laundry tubs. Main vent pipe for this or similar cases must be increased one size below roof, and pass out separately through roof.

42. Recessed and Threaded Drainage Fittings.

All fittings used for soil or waste pipes in connection with wrought iron pipe systems shall be extra heavy galvanized cast iron or malleable iron recessed and threaded drainage fittings. The burr formed by cutting the wrought iron pipe shall be carefully reamed out, and pipes left full bore.

43. Iron Floor Rests.

Vertical lines of soil, waste or other pipe inside of building shall be provided with strong wrought iron floor rests at intervals of every second floor.

44. Prohibited Fittings.

No double hubs, straight crosses double "T's" or double "T-Y's" shall be used in any soil or waste pipe below any fixture; no branch fitting other than a full "Y" or "Y" and ⅛ bend shall be used on any soil or waste pipe running in a horizontal direction, except W. C., when regular T.Y. (single) may be used.

45. Waste Pipe Sizes and the Size of Traps.

No waste pipe from any plumbing fixture shall be less than inside diameter of its trap.

The size of traps for a given fixture shall never be less than the following, inside diameter:

Water Closets	3 inches
Slop Sink	2 inches
Pedestal Urinal	2 inches
Urinals	1½ inches
Laundry Tubs 1 to 3 considered 1 fixture	1½ inches
Kitchen Sink	1½ inches
Pantry	1½ inches
Wash Basin	1½ inches
Bath Tubs	1½ inches
Shower Baths	2 inches
Sitz Bath	1½ inches
Drinking Fountain	1¼ inches
Dental Cuspidor	1¼ inches

46. Connection Between Lead and Iron Pipes.

Every connection between lead and iron pipes shall be made with brass thimbles, ferrules, solder nipples or ground in unions, having properly wiped joints, and the ferrules shall be properly gasketed, leaded and caulked into the said pipe.

47. Ferrules.

Brass thimbles, ferrules or solder nipples must not be wiped into closet bend or pipe or trap when used for venting same. All brass thimbles shall be increased in size so that the lead pipe will enter full size.

48. Brass Flange for Closet Connection.

Where the trap to closets is above the floor, the connection of the same with the soil pipe shall be made with lead bend or lead pipe and cast brass floor flange with gasket or rubber or asbestos, said brass flange to be not less than three-sixteenths of an inch thick.

49. Self Closing Cocks to be Used in Water Closets.

No arrangement shall be made for supplying water closets or urinals except by self-closing cocks, unless when water is supplied by meter; and no arrangement shall be made for cleaning water closets or privy vaults by waste pipes from wash basins or sinks or other improper means; but they shall be fitted up with the proper fixtures and appurtenances belonging to them respectively. No copper lining of tank for a water closet shall be lighter than 10 ounces to the square foot, and weight must be stamped on lining in conspicuous and accessible position. Sheet galvanized iron shall not be allowed.

50. Inspection: Drains and Other Piping Not to be Covered Until Inspected.

The Medical Officer of Health shall be notified when any work is ready for inspection, and all works must be left uncovered and convenient for examination until inspected and approved of, and when approved of a marker shall be placed in a suitable position. The inspection shall be made within two working days after receipt of notice (notice filed after 12 o'clock noon shall take date from the day following). When the soil is of such a nature that it cannot be left open for the two days, the inspection shall be made forthwith. The Medical Officer of Health, or the Inspector appointed by him, may require either a water or a smoke test, which test shall be made by the party whose work is being inspected; in the case of smoke test the Medical Officer of Health or Inspector will supply the machine or instrument to make such test, and the result of every inspection shall be recorded in the office of the Medical Officer of Health. If the work is not found satisfactory after being tested two days' notice shall be given to complete the same, and if the work is not made satisfactory within that time the penalty prescribed by this by-law may be enforced forthwith.

51. The Smoke Test and Certificate.

The smoke test shall be in all cases applied, to finished plumbing work in the presence of the Medical Officer of Health, or Inspector for that purpose by the master plumber or workman who is doing the plumbing job, before he, or they, hand over the plumbing work to the owner or his agent, and no plumbing work shall be considered complete which has not had a smoke test applied and found tight; for the purpose of this clause, plumbing work shall be considered finished when all the fixtures are fixed in their place. When work is found tight and satisfactory, the plumber shall receive a certificate for same.

52. Cocks and Hydrants to be Stamped.

Every water cock, bibb, tap or hydrant attached to any water service or pipe connected with and supplied from the Water Works System, shall have legibly stamped thereon, in a conspicuous place or a mark or the name of the maker and shall be properly tested both as to strength and weight before being so attached.

53. Plumbers to Report Work Done on Water Works Pipes.

Every master plumber or other person who shall himself or by his apprentices, agents or employees, make any extensions of, or alterations to, or shall remove any tap pipe or other fixture attached to the pipes of the Water Works, shall on the last day of the month on which such extension, alteration or removal is made, report the nature and extent of the same to the Water Works Commission.

54. Shutting Off Street Stop Cocks Connected With the Water Works.

No person shall be allowed, without first having obtained a permit from the Water Works Department, to open or shut off the street stop cock connected with the service, supplying any premises or buildings, unless in case of urgent necessity to prevent loss to, or prevent loss or damage from flooding or when a plumber requires to do so in order to make necessary repairs or to test his work, and in every case he shall leave the stop cock as he found the same, and any person who shall commit any dam-

(Continued on page 26)

BUSY MONTH FOR MOOSE JAW ENGINEERS

Moose Jaw, Sask.—The activities of the departments in connection with the City Engineer's Office, for the month of August, which have just been reported on by W. H. Greene, acting city engineer, are summarized as follows:

The total consumption of water for all purposes was 29,922,000 gallons, an average of 965,000 gallons per day as compared with 25,508,000 gallons total and 823,000 gallons daily average during August of last year. This is an increase in the total consumption of 4,414,000 gallons and of 142,000 gallons in the daily average.

The total amount of sewage treated at the Disposal Works was 27,589,000 gallons as compared with 24,572,000 gallons during August of last year. In addition 1,625 lbs. of screenings, 429 cubic yards of wet sludge from the sedimentation tanks and 241 tons of dried sludge from the drying beds was disposed of, as compared with 2,420 lbs., 434 cubic yards and 256 tons respectively during last August.

During the month 104 complaints were received and attended to, 81 being for the Sewer and Water Maintenance Branch and 23 for the Board of Works Branch, as compared with a total of 82 during last August divided 60 and 22 respectively.

The Boss Doesn't Make the Clean Sweep

or

"A SIMPLE PROBLEM WITH FIGURES"

THE BOSS Plumber takes the contract for the plumbing of a new 7 roomed house at $270.00.

The material alone, if he has no defective fittings to replace, costs him $230.00.

Therefore, the difference, representing cost of installing, cost of operating a business, and profit, amounts to $40.00.

Now this Boss employs no help (except his own family) which he doesn't pay.

And if this boss, working alone, does one of these houses complete, from the signing-up stage to the paying-up stage, in a week.

And therefore, does 50 houses a year (an utter impossibility). (Two weeks covers national holidays, etc.)

Then he would make 50 times $40.00 or $2,000 gross,

Now as a journeyman he would make (50 weeks) times (44 hours a week) times 90c an hour or $1,980.

Note. The $20 represents the difference between Capital and Labor.

It also represents operating expenses, profit, recompense for worry, etc.

It also represents the cash return on the chest expanding sentence "I AM A BOSS."

WORK and WORRY	$2,000.00
WORK	1,980.00

Why be a Boss and worry for $20 a year?

KENNETH B. ALLISON.

P. S.—Some one has suggested that perhaps some of these bosses could not hold down a 90c an hour job as a journeyman so they have to be their own boss.—K.B.A.

The teacher was trying to give her pupils an illustration of the word "perseverance."

"What is it," she asked, "that carries a man along rough roads and smooth roads, up hill and down through the jungles of doubt and through the swamps of despair?"

There was a silence and then Johnny, whose plumber father owned a couple of trucks, spoke up.

"Please, ma'am," he said, "there ain't no such Ford."

* * * *

Naming it—The curate entered the railway carriage, in which were seated a gang of navvies. En route the language of the latter was particularly emphatic and free.

Thinking to ease matters, one of the navvies turned to the curate and said:

"Look 'ere, guv'nor, you'll 'ave to excuse us chaps. We're a rough and ready crowd, and calls a spade a spade."

"Most extraordinary," replied the curate. "Judging by the run of conversation, I should have imagined you'd call it anything but that."

* * * *

A New Beverage—Sam, looking very disreputable and very much as though he had been "hit" by something, sorrowfully appeared before the judge. In a stern voice the judge said: "Sam, it looks as though you were drinking again."

Sam replied very weak and mournfully, "Yes, sah, dat was sho' pow'ful stuff what Ah had, jedge. Ah was drinkin' dat er chicken hootch."

"Chicken hootch? Why, I never heard of that."

"Yes, sah, jedge, chicken hootch. One drink and you lay."

* * * *

His Sacrifice—Walking along a main business street one day Pat noticed a little plumbing shop, not much larger than an apartment house kitchen. Over the door of the shop hung a service flag with thirty-eight stars. Pat looked at the shop and couldn't figure it out. The plumber happened to be standing in the doorway and Pat asked him:

"Is this your service flag?"

"Sure," was the reply.

"Why, you haven't thirty-eight members of your family in the service, have you?"

"Oh, no! Those are customers I lost."

Simple Principles of House Drainage

How Good Work Can be Done on Simple Lines Without the Use of Complicated Appliances and Heavy Expense

First of a short series of articles on House Drainage prepared exclusively for Sanitary Engineer by MAJOR JOHNSTONE TAYLOR

(Continued from last issue)

IF A NEW drainage system is to be installed in an old house the old ones and all contaminated sub-soil should be removed, irrespective of whether it is necessary to lay the new ones on the old lines or not.

In the case of a new system altogether it is necessary to ascertain what the sanitary by-laws of the place require. These must be complied with, and it is often necessary to send a plan of what is to be done to the local authority for approval. In any case it is a wise course.

New drains should be laid in straight lines from point to point, each length should be laid at an even gradient, not less than 1-100, and more if possible and for average cases 4 in. pipes are the best to use. 5 in. and 6 in. may be used for large buildings. There are no fixed rules or formulae applicable, these sizes are universal in the best practice.

The pipes may be either stoneware or fireclay. There is little to choose between them if iron is not used. The latter is very good practice and will be returned to later. The so-called "Extra Salt Glazed" fireclay pipe makes a good job. They are usually put up in 3-foot lengths and a wide variety of bends, junctions, specials, etc., are obtainable. The pipes should be cylindrical, free from cracks, burrs in the glaze, reasonably straight and have good deep sockets. Stoneware pipes are generally harder and of a closer grain than fireclay; many people consider them a superior article, in many places they are more expensive than fire-clay pipes, but their superiority is problematical.

Pipe drains should not be laid on the trench bottom. A concrete bed 9 in. wide by 5 in. thick should be laid between screeds at the correct grade from point to point. The grading of the bed is done with boning rods, although on a big job a surveyor's level may be required. The determining point of the levels is obviously the outfall, when this is fixed the best grades available must be set out.

The concrete beds would then be laid to these grades, the pipes then following with the correct fall.

Joints

The ordinary fireclay or stoneware pipe is jointed with tarred gasket and cement. The gasket is worked into the socket and serves to keep the pipe barrels concentric and the cement worked in afterwards and finished off with a bevel as shown in Fig. 1. There are numerous patent joints on the market. Their object is to overcome the defects, or supposed defects of the cement joint.

As a general rule they may be considered an expensive luxury, sometimes efficient and sometimes not. The "Stanford" joint, shown in Fig. 2, is a really good pattern. The spigot has a band of bituminous material cast on it and the socket a ring of the same material cast in it. The band and ring are formed by cast iron moulds to a taper shape, giving the same effect as the turned and bored water pipe. There is no need for gasket with these joints, the male and female ends are wiped with oil, pushed home together and the joint finished with cement as in Fig. 1. Most sewer pipe makers supply this joint made on pipes or they will supply the moulds and material, the latter being a compo. of tar, bitumen, sand and sulphur. This joint makes a really good job, and is not very expensive. It is most important that the pipes are supported or "Cradled" underneath between sockets with concrete so that the weight of the filling in does not come on the joints. When a length is complete it should be water tested, a bend put in at the top end will give the necessary "head." If the water stands steady after the gaskets have got saturated the trench may be filled in. This should be done with care so as not to damage the pipes. The water test should then be applied again. Another good test is to roll a ball ⅛ in. smaller than the bore of the pipe, through it. It will be a well laid pipe that will pass the ball freely. Some engineers insist on this test, which is rather severe.

Thus each section of pipe can be laid length by length, traps, junctions, etc., either being put in as the work proceeds or left till after the pipes are in.

No drain should enter a sewer or cesspool without a disconnecting trap. It is often enforced by law. Its purpose is to cut off the system from the sewer air which may be very foul. It is advisable to set the trap in a manhole as shown in Fig. 3.

(Continued in next issue)

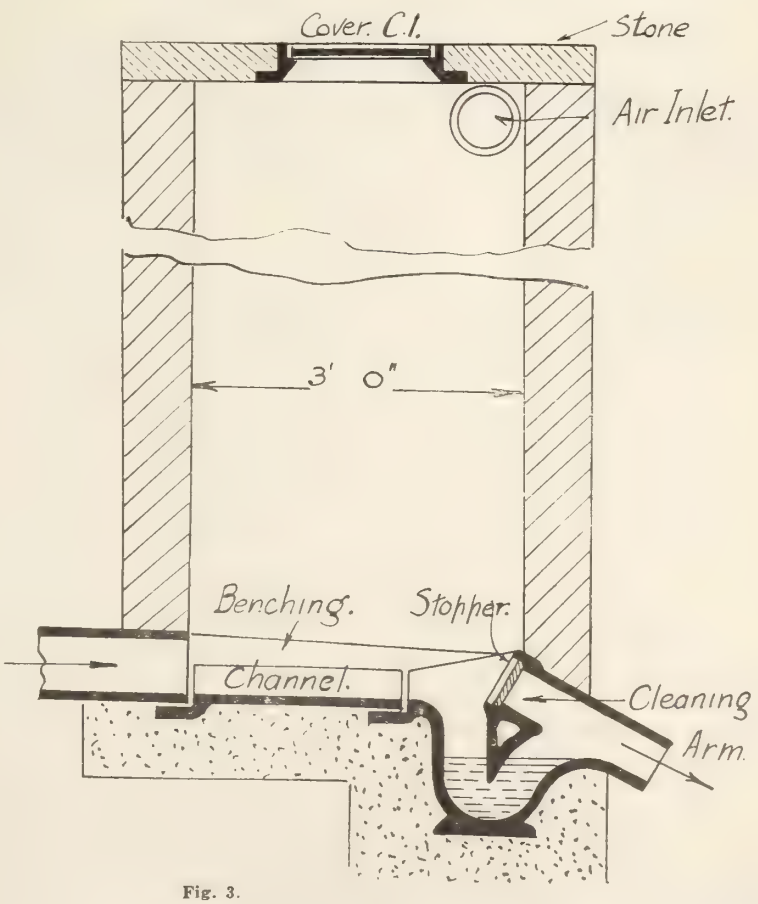


Fig. 3.

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Plumber and Steamfitter of Canada

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ANOTHER GAS fatality in Toronto this week caused by a supply tube becoming disconnected from a gas heater when a dog endeavored to squeeze through between the wall and the heater, draws attention to the great annual loss of life in connection with gas installations because of the lack of regulations which would serve to protect against this danger by having all connections done by a competent tradesman.

A Timely Suggestion

IN SUMMER we swim for the exercise there is in it and the toning up effect of the cool water. In winter, outdoor swimming is out of the question but we still have swimming tanks, bath tubs and cold showers and anyone who has been swimming all summer would not suffer any discomfort in continuing the good work by cold morning baths. The change in temperature would be so gradual as hardly to be noticed. It is only the individual who gets the cold bath idea about mid-winter and jumps in the water from the ice-cold tap, who gets a shock which makes him "swear off" after the first attempt. The other fellow never notices it, as he has gone ahead gradually, and as a result comes out with the glow and vigor which will mean money to him every day. In addition, he will be less liable to colds and various lung affections throughout the winter. Here is an idea to help stimulate bath sales in the winter.

Making Real Progress

BATHROOM fixtures, even for the proletariat, have achieved an amazing point of perfection. Canada has apotheosized the bathroom. The modern home is built around it, and the Canadian workingman bathes like a Roman emperor. Whenever a sociologist wishes to point out that the standards of everyday living have advanced in the last quarter century, he always clinches his argument by pointing triumphantly to the bath of the workingman. It would almost seem that the greatest social advances made in Canada in the last twenty-five years have been along the lines of improved plumbing.

In contrast to this, it is rather curious to read an account given by an English writer of some of the bathrooms encountered in a house-hunting expedition in Mayfair. The houses visited were all old houses, antedating the great plumbing period, and the owners had sought to adapt themselves to the new standards being set by the community, after the casual fashion peculiar to the Briton. These houses were all homes of well-to-do people. They had magnificent reception rooms and impressive rents. In one of them there was only one bath, and it had been placed in the bedroom of the owner of the house, so that no one else could use it without making special arrangements with the head of the family. In another the bath was in the basement. In a third, it was tucked away unostentatiously in a cubby-hole under the stairs along with the telephone, and in a fourth, it was in the maid's room, and was modestly screened off by a curtain. The modern bathroom appears to be an institution which England admits only with the greatest reluctance into the conservative circle of its domestic life. Plumbing has not attained to the dignity in the old world that it has in the new. In Canada the plumber is a sanitary engineer. In England he is still referred to slightingly as the pipe fitter.

One suspects the truth of the matter to be this—It isn't that we are any cleaner in Canada than the people in the British Isles. It is simply that we have fallen in love with plumbing. We like the gleam of a porcelain interior, the glitter of nickel faucets, serried ranks of shining towels, washbasins rising on graceful pedestals. There is a revealing story told of a prominent citizen of Toronto, who went to visit in New York, and wrote home to his wife, describing the glories of the hotel at which he was staying.

"It certainly is a magnificent place," he said. "You ought to see my bathroom. I can hardly wait till Saturday night."

That is the sentiment which aggressive plumbers are furthering and they are cashing in big on it.

Greater Interest in Plumbing

THAT SMALL towns are taking greater interest in the installation of plumbing and sanitary fixtures is indicated by the adoption of a modern bylaw by the town of Weston. This by-law is reproduced elsewhere in this issue of Sanitary Engineer. It contains a number of clauses which will be of direct interest. It will be noted that some radical changes are outlined therein, premier items being the elimination of the main house trap, while the use of clay tile drains inside the walls is prohibited.

Waste Advertising Appropriations

THAT AN association organ should be that only and not pretend to give service to advertisers is the important principle which has been adopted by the Associated Advertising Clubs of the World in regard to "Associated Advertising" which in future will not sell space. This decision by an organization of leading American financial, manufacturing, mercantile and other business concerns is a highly important one in the field of advertising and publicity.

Congratulations to the Associated Advertising Clubs in taking this stand are offered by Printers' Ink which points out that the Clubs "can now take a fearless stand in their opposition to nondescript mediums which are organized and conducted solely for the purpose of producing revenue and for which there is no real need in the field."

Particular emphasis is laid upon Trade Associations as offenders in this respect. We read:

> "Trade associations have been our greatest offender in this respect. Advertising-soliciting organs of this sort are started for many reasons, but generally with the hope that the revenue thus raised will help to defray the expenses of the Association. Thus the organization launches itself into a separate outside business about which it knows nothing and which it conducts merely as a sideline. The fact that in most cases these publications are money-losers does not deter others from trying to be the exception.
>
> "From the advertiser's standpoint, the greatest objection to nondescript mediums is that they subtly dissipate appropriations. In one guise or another, these mediums levy peremptorily on the advertiser's funds and thus exhaust appropriations, leaving the advertiser with the mission of his selling campaign unaccomplished. This is one of the most crying evils in advertising. The Clubs, and in fact every legitimate advertising interest, should join hands to stamp it out."

Patterns for Elbow Intersecting a Pipe

Written for Sanitary Engineer by O. W. Kothe, Principal, St. Louis Technical Institute, St. Louis.

IT IS not often that fittings as shown in this drawing are met with, only in close places where short turns must be made, and where a tee is not permitted to run at right angles into a main pipe.

In such cases an elbow is designed and joined to the main pipe, which causes the flow to merge somewhat with the flow in the main pipe and give fairly good satisfaction.

Observe that the elbow is built right in the pipe and then by means of a plan view, we cut off the lines in the elevation of elbow, and this makes the miter line.

So, first draw a plan of the main pipe, with the section J for the branch pipe, making each to their required diameter.

Divide the section J in any number of equal parts and draw lines to the main pipe as in points 1-2-3-4.

Observe this shows how far the branch pipe sets over the main pipe.

Now by erecting lines, we make an elevation of the main pipe.

Having this done, we next design the elbow so that the edge of throat is on a line with the outer edge of main pipe.

The radius of elbow is made to suit the position in which it is to fit, but it should be made as large as possible, preferably 2 diameters.

Then divide the arc for heel in that number of equal spaces so that we have a 5-piece elbow, which would require 8 equal spaces.

If a more or less pieced elbow is required, spaces are divided up to suit.

Next describe the half section I and divide in the same number of equal parts as at J.

From each point in I project lines to the first miter line of elbow.

From here continue them parallel with the second gore piece of E with elbow, then from this second miter, continue the lines to the third miter line.

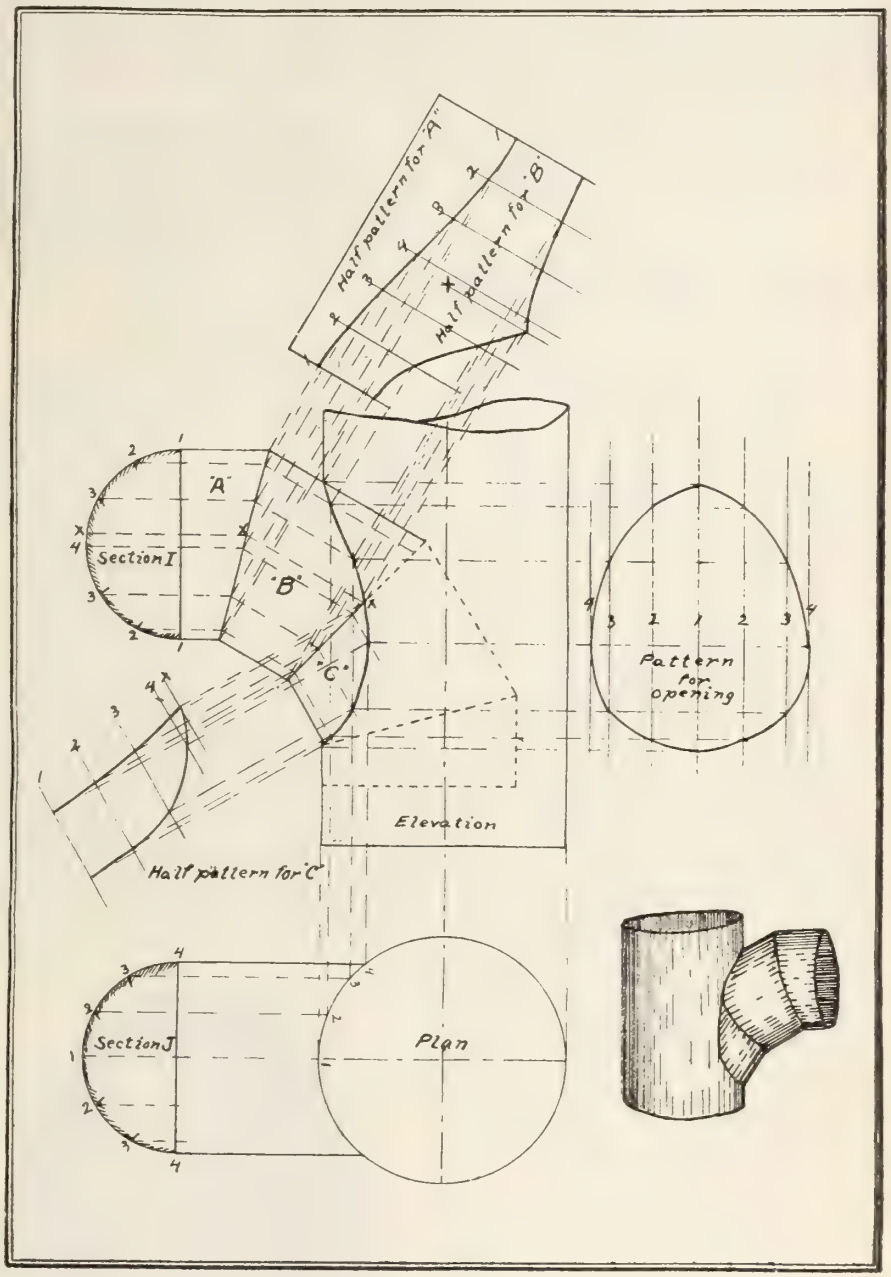
Where these elevation lines intersect, those erected from plan gives us the points of penetration between the elbow and the main pipe and is shown by the heavy lines traced through these intersections.

Now we see that no line intersects this miter, where it crosses the second miter line as at X.

Hence, to establish this high point in the pattern, we extend this point back to section I as at X.

To set out the pattern "B" square out a line at right angles to this gore piece and step off the circumference from section I.

Draw stretchout lines parallel with the elevation lines, and then from each point in the first miter line and the second miter lines project lines in the stretchout until they intersect lines of similar number.



Also do this from intersections in the miter line between pipe and elbow until they intersect lines of similar number.

Then through these intersections in pattern trace a uniform curve and you have the pattern for middle gore "B."

Observe the line X is traced in this pattern in the same relation as 4-X and section I.

By drawing a straight line on a heel and making the throat and heel equal to the length in elevation, we also have the half pattern for the end gore piece as shown by "A."

To set out the pattern for a piece "C" we notice that this requires a girth equal to X-1 and back again to X of section I.

So, we pick this girth and set it off at right angles to the lines "C."

Draw stretchout line and then from each point in the miter lines bounding "C" in elevation, project lines until they intersect similar lines in stretchout.

Trace a uniform curve through these intersections and the pattern is finished.

C. A. Patillo, Puce, Ont., wants prices on hot air heating for new school it is planned to build.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

BUSINESS CHANGES

Nisbet and Walker, plumbers of Regina, Sask., have discontinued their business.

Springhill, N. S.—Mr. Moffatt has purchased Mr. Atkinson's interest in the plumbing firm of Moffatt & Atkinson.

DAMAGED BY FIRE

F. L. Tibbits, plumber of Truro, N. S., recently suffered loss by fire.

GAS ASSOCIATION CONVENTION

The fourth annual convention and exhibition of the American Gas Association, will be held at Atlantic City, October 23-27 inclusive.

PLUMBING AND TINSMITH BUSINESSES DESTROYED IN NORTHERN BUSH FIRES

Among the plumbing shops burned in the bush fire in Northern Ontario were W. Meaney, tinsmith, Haileybury.

$100,000 SEWER PLANNED

Winnipeg, Man.—St. James municipality is planning for $100,000 worth of sewer and water mains. Contracts are now being awarded. The present plan is to proceed with this work before the frost prevents any undertaking of this nature.

PLUMBER GETS CONTRACT

Chatham, Ont.—The heating system of St. Joseph's school will be completely renovated according to a decision reached by the Separate School Board. The contract for the work was awarded to Robert Mitchell, local plumber.

SUFFERED IN CONFLAGATION

Francis R. Gibson, plumber and tinsmith, of Haileybury, Ont., suffered loss by fire in the conflagation which recently swept a part of Northern Ontario, practically destroying several towns.

INSTALL OIL BURNERS IN PUBLIC SCHOOLS

Ottawa, Ont.—Two oil fuel burners are being installed in the boilers of Elgin and York Street public schools as a test of this form of heating. According to one official of the board, no difficulty has been experienced in the obtaining of coal, and none is anticipated, but if the oil fuel measures up to a higher standard than the coal, it will be used and the necessary apparatus gradually installed in all schools.

GETS TILING CONTRACT

D. Pilla, Port Arthur, has received a contract from the Port Arthur Division of the Provincial Paper Mills, Ltd., for the placing of 10,000 square feet of enameled tiling as a lining to several tanks in the new paper mills. One carload of tiling will be used.

EDWIN NEWSOME WRITING FOR SANITARY ENGINEER

Arrangements have been completed whereby Edwin Newsome, will contribute a series of articles on plumbing, heating and sewage disposal systems. The first of these installments appears elsewhere in this issue, on the subject of rural sewage disposal. Mr. Newsome is a former editor of Sanitary Engineer.

WOODSTOCK COUNCIL AUTHORIZE LAYING OF SANITARY AND STORM SEWERS

Contracts were let by the city council for the construction of sanitary sewers on Main, Duke and Queen streets. It was also decided, by the acceptance of the board of works report, to construct a storm sewer on Kent street at a cost of $1,100 to relieve a local industry of storm water difficulties.

EDWIN NEWSOME

Who, commencing with this issue, will contribute technical editorial data to Sanitary Engineer and answer enquiries from the trade concerning sewage disposal, house drainage, etc.

ACTIVITY IN PORT HOPE

Port Hope's factories are becoming more active. The Port Hope Sanitary Company announced that it is running with full staff, and will continue to do so throughout the winter. Other plants are increasing their production.

WILL DESCRIBE BENEFITS OF RURAL PLUMBING

The Ontario Agriculture College has appointed Edwin Newsome, of Toronto, to the position of travelling lecturer to describe the benefits of rural plumbing. Mr. Newsome's duties in this connection will include instructions on all phases of modern sanitary fixtures, including water supply, household conveniences, sewage disposal and heating and ventilation.

SHERBROOKE RESERVOIR

Less than four months after the pouring of the cement base and walls had been started, the new city reservoir, capable of holding seven million gallons of water, is completed and ready to assume its responsibility of caring for the water supply of the citizens. The completion of this massive work of construction is the culmination of four long winters of toil, and it has been the means of affording a large amount of work.

PITTSBURG WATER HEATER CO., OPENS NEW OFFICES AND SHOW ROOMS IN TORONTO

The Pittsburg Water Heater Co., have opened a Canadian office and show room at 504 Spadina Avenue, Toronto. Stocks of water heaters, "The Lion" tank as well as "Pittsburg" automatics will be available at a moment's notice.

The trade are informed by the newly-appointed manager, E. M. Paterson, that all business will be conducted through the channels of the plumbing trade only, and a service department will be maintained.

Mr. Paterson is fairly well known to the trade, having been connected for five years with the Consumers Gas Co., Toronto, and during the period between 1919 and to date has taken an active part in the sale of Dodd Gas-Fired Boilers. Any member of the trade having gas problems to solve, will have free access to the service department established in connection with gas-fired boilers or domestic gas-fired water heaters.

WATER CONTAMINATED

Contamination has been discovered in the water supply of Woodstock, and a special meting of the Board of Health is being called to consider the matter. Meanwhile the citizens are requested either to boil or purify their water supply. A mild outbreak of typhoid fever is the cause of the investigation which disclosed the impure water conditions.

CONFER ON SEWAGE DISPOSAL

Hamilton, Ont.—Another step toward the building of sewage disposal equipment to serve the city will be taken, when a conference will be held between the members of the board of control and the harbor board. Gore, Nasmith and Storrie, the city's consulting engineers, will also be present.

The new disposal plant will likely be constructed on land to be made at the foot of Gage avenue. The dredging processes in connection with the building of the docks will create a certain area of land which will be utilized by the city.

It is hoped to submit a by-law to the people by next New Year's. How much will be involved in the expenditure on the plant cannot be ascertained as yet, and in any event, it would be only the first unit which would be paid for next year. If sufficient progress has not been made with the operations to submit a by-law by New Year's, an order may be sought from the provincial board of health to proceed with some of the preliminary work, and the people will be consulted later on.

WESTERN ONTARIO NEWS

W. R. Lashbrook, formerly of Stratford, but recently of Acton, has moved to Elora and opened a shop October 1.

Contract for new waterworks pumping plant at Alvinston, Ont., has been awarded to Goldie McCulloch Co., of Galt, Ont.

Baird Bros., of Cayuga, were awarded contract for installing new hot air heating system in the Cayuga Methodist Church.

Plans for new waterworks system for Wheatley, Ont., are to be prepared by R. O. Wynne-Roberts, 40 Jarvis St., Toronto.

Prices are wanted on steam heating and lavatory equipment for new $30,000 school at Blenheim, Ont. W. J. Baird, secretary school board.

Tenders are being received by Architect W. G. Murray, Dominion Savings Bldg., London, Ont., for hot air heating, plumbing and electrical work for two-storey addition to store of J. Fraumeni, costing $8,000.

Plans are being prepared and tenders will be called October 15, by Middlesex Motors Limited, London, Ont., F. B. Isaacs manager, for service station to cost $50,000. Prices wanted on hot air heating, plumbing and electrical work.

PLAN FILTRATION PLANT

Windsor.—Windsor can build a filtration plant of its own for $500,000 and can supply this city, Sandwich and Sandwich West with pure water at a cheaper rate than would obtain under the joint scheme proposed by Essex Utilities Commission, according to a statement by William Hanrahan, secretary of Windsor Water Board, dealing with a report submitted to the commissioners.

The reply of the Windsor Water Commission to the claim of the joint board that its co-operative scheme is the most economical, is based upon figures submitted by E. M. Proctor, consulting engineer, of Toronto.

CITY BUILT SEWERS WITHOUT OUTLETS

Montreal.—On the ground that the sewers laid on Monk Boulevard and Beaulieu Street, in St. Gabriel ward (formerly the town of Emard), have not been of any service to the property owners, "and may not be of service for years to come," inasmuch as they are blocked at both ends and must remain in that condition until a discharge basin is built, Justice de Lorimer in the Superior Court gave judgment maintaining the action of the Compagnie de Terrains de la Banlieue de Montreal, and other interested proprietors, and quashed the civic roll which had assessed the plaintiffs for the work of sewer construction at a sum of $25,000.

Justice de Lorimer, in his judgment, said: "The evidence goes to show that the two sewers in question are blocked at their extremities, and have never been joined to a discharge sewer. Consequently, they cannot serve the purpose for which they are destined."

LIVING IN HARMONY

(Continued from page 12)

their teeth examined periodically and have doctors and nurses to supervise their general health.

Things Worth While

"It all this necessary?" you ask.

"Absolutely yes."

"Is not all this precaution to conserve the health of our children—this expense of supplying fresh air, pure water and sanitary conveniences—is this not just a fad?"

"Good Lord, No!"

It points out that in spite of the multiplicity of artificiality which makes life so complex that man's intelligence has kept pace with the great needs of the times.

"Then," you ask, "if so much care is required in the raising of our children, should they be surrounded by the same conditions when they grow up into manhood and womanhood?"

"Most assuredly, yes!"

"Well, are they?"

"No, they are not."

"Why not?"

Because in spite of all the opportunities that are afforded to learn what is good for us, we are mislead into the belief that clap-trap amusements, unnecessary luxuries, and worthless trifles are of more consequence than "Living in Harmony with Nature."

Go into some of the homes that many of our school children come from and you would raise your hands in "Holy Horror;" yes, right here in this big modern city of ours. And throughout the rural districts it is "To Make the Angels Weep."

"Why—why—why is this?"

Sanitation a Necessity

I have already shown that much has been done to broadcast the necessity for healthful and sanitary living conditions. It is true that the majority of big cities in the English-speaking world have awakened to the fact that sanitation is absolutely necessary to the well-being of the community, and have enacted by-laws and appointed inspectors to see that these by-laws are being complied with. But there are "lapses," and many of them—the public generally seems apathetic—and it is surprising how many try to dodge the legal requirements for the maintenance of health—particularly if these requirements call for an outlay of money.

Unfortunately our provincial governments have not enacted legislation for sanitation as have the cities where congestion has made such legislation imperative. But nevertheless it is time that all our governing bodies were made to see the "light" and enact legislation to force people in all parts of the land to live and bring up their children in healthy surroundings and under sanitary conditions. The increased efficiency of "the human machine" will more than pay for the expenses entailed. Sad, sad is the realization that people as a whole are too blind to see what is best for them.

It is an incontrovertible fact that intensive civilization is the outcome of generations of artificial development, and the debilitating tendencies subsequent upon this artificiality, must be counteracted by scientific artificial means, viz.—applied sanitation, heating and ventilation.

And when we realize that air, water and heat, the primary essentials to health, are the basis of "Sanitary and Heating Engineering," is it not a reflection on us who make this our life work that we are not "putting it over" more effectively?

While I know I will be called to question by many, it is my belief that the sanitary engineer, practising his calling to the best of his ability and appreciating his responsibility by intensive study and active propaganda, is just as essential to the well-being of a community as a medical doctor. The one works to "prevent," the other strives to "cure."

Let us "boost" to make the world better and happier by helping it to "Live in Harmony with Nature."

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Port Hope Sanitary

Vancouver Office:
325 HOWE ST.

Factories:
PORT HOPE, ONTARIO

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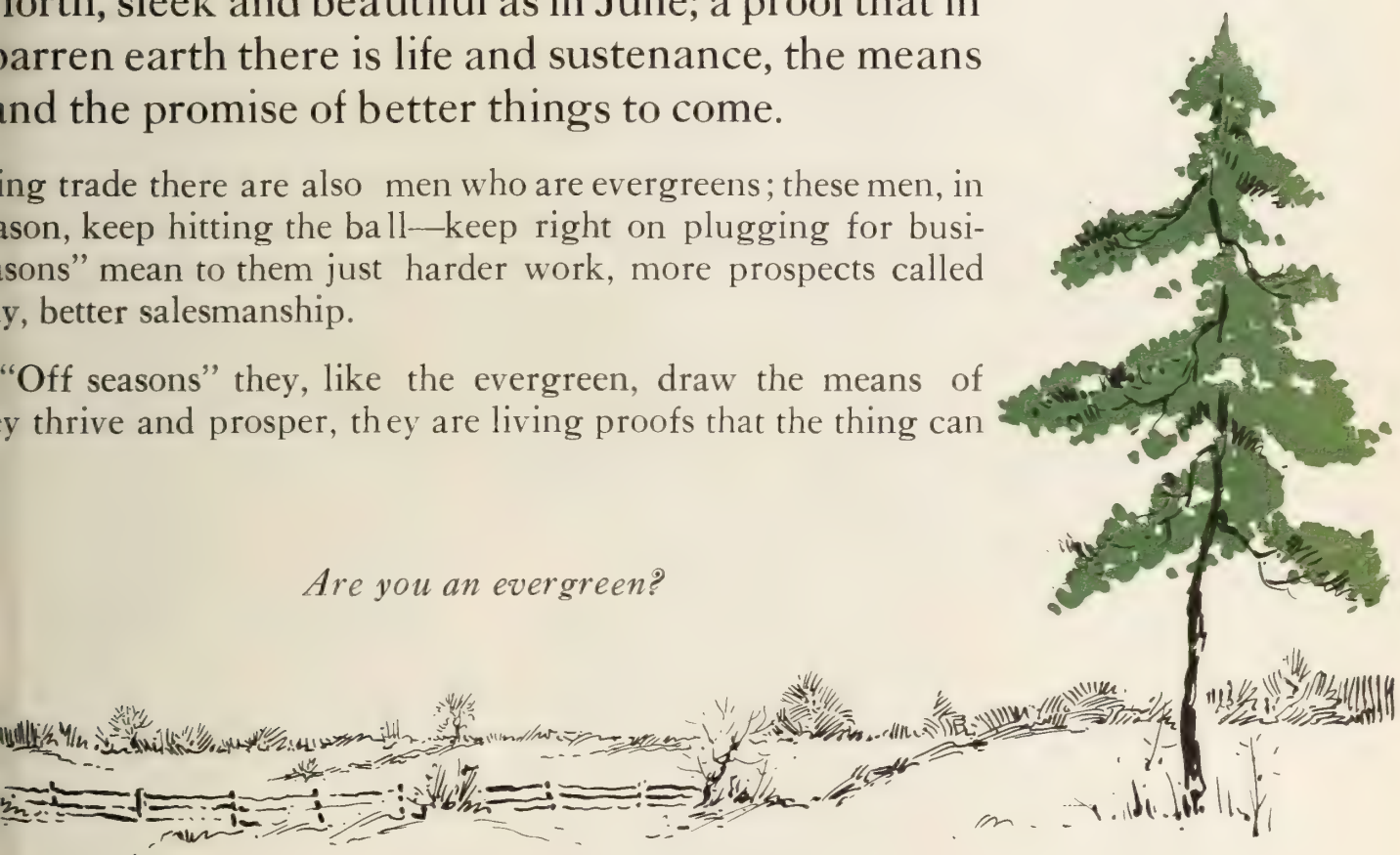
REENS

e golden Autumn, the chill winter, or the sunny
ne, the evergreens rear aloft, ever verdant, ever
.

neighbors, yielding to the adverse winter gales,
k and cheerless and seemingly dead; these hardy
forth, sleek and beautiful as in June; a proof that in
barren earth there is life and sustenance, the means
and the promise of better things to come.

ing trade there are also men who are evergreens; these men, in
ason, keep hitting the ball—keep right on plugging for busi-
sons" mean to them just harder work, more prospects called
y, better salesmanship.

"Off seasons" they, like the evergreen, draw the means of
y thrive and prosper, they are living proofs that the thing can



Are you an evergreen?

g. Company, Limited

ffice:	Winnipeg Office:	Montreal Office:
BLDG., TORONTO	405 TRIBUNE BLDG.	301 SOUTHAM BLDG.

WESTON ADOPTS BY-LAW

(Continued from page 17)

age or injury to any stop cock in the service pipes of the Water Works shall be liable for the amount of such damage.

55. Licensed Practical Plumbers Only to do Work. All Work to be Subject to Inspection by Medical Officer of Health.

All work contemplated in this by-law shall be done in a workmanlike manner, and shall be subject to the inspection, supervision and approval of the Medical Officer of Health or any Inspector appointed, and all plumbing work required under this by-law shall only be done by a licensed master plumber or by a regularly trained practical and experienced plumber in the employ of such licensed master plumber, and all faulty or defective work which may at any time be discovered, shall be made perfect to the satisfaction of the Medical Officer of Health or Inspector.

56. Plumbers' Licenses.

Upon and after September, 1922, and in every succeeding year, any person, firm or Company, desiring to carry on the business or trade of plumbing in the Town of Weston, shall take out a license to be issued by the Town Clerk and shall pay therefor at the time of taking out of the same, a license fee of ten dollars ($10.00) in each ensuing year while carrying on such business or trade.

57. Evidence of Responsibility.

A license shall only be granted after the Plumbing Inspector shall have been furnished with satisfactory evidence of the responsibility of the applicant and that applicant is a practical and experienced plumber, or will employ a sufficient number of practical and experienced plumbers to do all plumbing work that applicant may engage to do, and whether the applicant is a practical plumber or not, an undertaking shall also be furnished that the applicant will not permit any plumbing work undertaken by the applicant to be done except after a permit has been granted by the plumbing inspector and plans and specifications therefor approved by the plumbing inspector and filed in his office, and that all work will be done by a competent and practical plumber and no license shall be granted except as herein provided.

58. Application For License

The applicant for such license shall file with Town Clerk an application in writing, signed by the applicant, asking to become a licensed plumber, and giving the name and place of business of the person, firm or company applying, and, in the case of a firm the name of each member thereof, which application must be accompanied by the license fee, and shall contain an undertaking on behalf of the applicant agreeing to conform to and observe the conditions of this by-law and any other by-laws of the said corporation hereafter passed, and any rules and regulations adopted by the Council respecting plumbing, drainage and sanitary matters.

59. License Posted Up

All licenses shall be kept in a conspicuous place at the place of business of the holder thereof, and any change in the place of business of the licensee must be promptly reported to the Town Clerk.

60. A Firm

Where a license is issued to a firm it shall be in the name of the firm.

61. Term of License

No license shall be granted for a longer period than one year, and shall be good for one year from the first day of January in each year issued, and no license shall be transferable.

62. Forfeit of License

Any licensee hereunder who shall be guilty of a violation of any of the provisions of this by-law, or of the rules and regulations adopted by the Council respecting plumbing, drainage, water system and sanitary matters, shall forfeit his license as well as being subject to the penalty provided for in this by-law, and when such license is declared forfeited by the plumbing inspector, who shall have power to do so, such licensee shall not again be entitled to a license until the same is authorized by the Council.

63. Acts of Agents

All licensees shall be responsible for the acts of his or their agents or employees in respect to all plumbing, water system, and drainage and sanitary matters.

64. Penalties

Any person convicted of a breach of any of the provisions of this by-law shall forfeit and pay at the discretion of the convicting magistrate, a penalty not exceeding (exclusive of costs) the sum of fifty dollars for each offence, and in default of payment of the said penalty and costs forthwith, the said penalty and costs, or costs only, may be levied by distress and sale of the goods and chattels of the offender, and in case of there being no distress found out of which such penalty can be levied, the convicting magistrate may commit the offender to the Common Gaol of the City of Toronto, with or without hard labor, for any period not exceeding six calendar months, unless the said penalty and costs (if any) including the costs of the said distress and of the committal and conveyance of the offender to the said gaol are sooner paid.

PLUMBING AND HEATING COURSES IN MONTREAL

As a result of the efforts on the part of the Montreal Master Plumbers' Association, through a special committee, a course on plumbing and heating has now been instituted in the Montreal Technical School on Sherbrooke Street. Some time ago P. C. Ogilvie, J. A. Francoeur and J. E. Walsh were appointed, representing the association, to interview the Provincial Government officials in Quebec in the hope that something along these lines could be done, the need of apprentices being fully realized for some time past.

Montreal master plumbers are pleased that action is now taken, and are behind the scheme. Teachers of the classes will be fully trained engineers under the supervision of the Master Plumbers' Association, and under the direction of A. Coussineau, City Sanitary Inspector. It is stated that those attending will have every opportunity of acquiring a full knowledge of the trade from a technical point of view. When the style of course to be given was under discussion there was a diversion of opinion as to whether it should also contain a certain amount of practical teaching, but when it was considered that students would at the same time be receiving practical knowledge through working in shops during the day it was decided to teach only from a technical standpoint.

Fifty have already enrolled. It is proposed to hold English classes on Tuesday and Thursday of each week and French on Wednesday and Friday. The need of elementary training with a good many pupils has not been overlooked, and to those requiring it primary studies will be given on simple mathematics. Although the idea is to eventually have a three or four years' course, prospective pupils are registered for the first year; at the end of that time progress can be checked for further and higher instruction.

COUNCIL PROMISED SEWERS

Todmorden, Ont.—There is no doubt but that machinery will be put into operation to instal the district sewer system; and that work will commence by next spring. Such was the promise made to over 200 ratepayers by Engineer R. O. Wynne-Roberts, who outlined the sewerage schemes; and members of York Township Council, Reeve Miller, Deputy Reeves Macdonald and Bury, and Councillor McKay. It will not be necessary to put the schemes to a vote in the district on account of the representative meeting.

By a standing vote the ratepayers were unanimous in their decision to have sewers at the earliest possible time. Following the promise, a vote of confidence was expressed in the Council and Mr. Wynne-Roberts.

Catalogs and Booklets

McALEAR SPECIALTY CATALOG

The McAlear Mfg. Co., Chicago, Ill., have ready for distribution a new 128 page catalog known as No. 27, which illustrates many new devices, including an individual temperature control valve, specialties for all power plants, vacuum and vapor heating systems, oil refining and water works plants, plumbing systems and marine service, together with illustrations showing their application and use.

The individual temperature control valve is self contained and it is claimed can be applied to any radiator, old or new, without additional piping other than the supply and return. When the thermostatic member is set for the desired room temperature, it automatically controls the opening and closing of the valve.

This catalog contains a comprehensive detailed description of all specialties.

DUNHAM BULLETIN No. 106

Bulletin No. 106, has just been issued by the C. A. Dunham Co., Ltd., of Toronto. This bulletin covers reducing pressure valves. It contains a full description of these various products together with specific illustrations, details regarding sizes and patterns, and a quantity of other useful informaton. The Dunham type of lever valves are fully described, with various specifications for the different pressures.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

Markets at a Glance

ANOTHER fairly heavy list of price changes again serves to emphasize the importance of closely following current developments in the plumbing markets. Lower prices are recorded on galvanized sheets, black and blue-annealed sheets, while cement quotations are slighly lower in some cases.

IN KEEPING with the majority of recent market revisions, however, another group of increases is recorded. Radiators and boilers supply the premier change of this nature, higher levels being in effect through the issuing of new discounts. Certain sizes of boiler tubes are also recorded higher, with a stronger undertone being evident in these lines. It is stated that certain manufacturers are now contemplating an advance on valves and compression bibbs. Lead and zinc products are also on a firm price basis, due to the continued strength of metals in primary circles.

CURRENT trade in sanitary fixtures is now of a spasmodic nature, the demand in some cases being quite moderate while others report business to be keeping up in fair volume for this time of the year. The advent of colder weather has caused a spurt in late building where homes and similar erections are being rushed to completion.

Montreal Markets

MONTREAL, October 13.—Market changes during the past two weeks are in an upward direction, and one of the outstanding revisions is quoted on boilers and radiators. Practically all sizes and designs of both products are now higher in price. Through a revision in discounts advanced quotations are also given on eavestrough and conductor pipe, the increase being approximately ten per cent. A firmer tendency is noted in the scrap markets when zinc and copper waste are slightly higher in price. On ingot metal markets a certain amount of strength is apparent, and firmer prices are noted on antimony, spelter and lead.

There is now a feeling among local distributing houses that peak prices have been reached in various iron and steel commodities, more especially on galvanized sheets and bar products. It is pointed out that a quieter season will soon be in evidence, and stocks are now in much better shade. A steady market is looked for rather than a continued firmness. Lead and zinc products remain in a firm position owing to the improvement in primary metal circles, and wrought pipe is on a steady to firm price basis. Enameled ware in general is still selling on a very unsettled market, price concessions being quite common among distributors.

STEADY TO FIRM TONE IN WROUGHT PIPE

Montreal.

A very steady undertone continues in the wrought pipe market, with prices unchanged under list No. 56. Domestic manufacturers still point to higher production costs which now prevail as an indication of firmness, but chances of a further revision at the present time are now considered unlikely. Demand, especially in smaller sizes, is good and quite up to expectations for this season of the year. Stocks also, while in better shape than formerly, are only in fair shape in some of the best selling sizes.

SCRAP MARKETS NOW IN SLIGHTLY IMPROVED STATE

Montreal.

Minor price changes in an upward direction are made in quotations on copper and zinc in the waste material markets, this tendency reflecting the stronger tone in both metals on primary metal markets. Consumption of metals is slightly heavy, and this is said to be responsible for the general betterment. Iron and steel scrap is little changed although there is plenty of room for increased demand in these lines. Rubber waste continues very dull, and following are average dealers' buying prices:

Automobile Tires	0 50
Rubber shoes	0 02
Yellow brass	0 05 to 0 06
Red brass	0 08¾
Light brass	0 04
Scrap zinc	0 04
Lead, heavy	0 04½
Lead, tea	0 03
Light copper	0 08½ to 0 09
Heavy copper	0 11½
Wrought iron, R. Rd., No. 1 per gr.ton	10 00
Malleable scrap (ton)	9 00 to 10 00
Pipe scrap (ton)	7 00
Heavy melting steel	9 50 to 10 00
No. 2 busheling	3 00
Boiler plate	8 00 to 9 00
No. 1 machinery cast	20 00 to 22 00

BOILERS AND RADIATION HAVE REVISED DISCOUNTS

Montreal.

Boilers and radiators are now quoted at higher figures through a revision in discounts. With the exception of larger sized square or sectional water boilers and round steam boilers a general revision is made. The undertone in the market for these lines has been very firm for some weeks past in line with practically all other iron and steel products, and manufacturers state that the only surprise is that increased levels were not announced at an earlier date. Current trade continues in fair seasonal proportions and following are list prices with new discounts:

RADIATORS AND BOILERS—

Radiator list prices are for 1, 2, 3, 4 and 5 column radiators, per sq. ft.

45 in. to 38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60. Discount 55 per cent for hot water, and 56 per cent for steam.

Wall radiators—5 ft., $1.15; 6 ft., $1.10; 7 ft., $1.05; 9 ft., $1.05; 12 ft., $1.05; Discount 52 per cent.

Boilers—Round hot water boilers, sizes from 0 to 10, 60 per cent. off list. Square or sectional hot water or steam boilers, 15 in., 15 per cent. Square or sectional water boilers, 19 in. to 36 in., 20 per cent. Square or sectional steam boilers, 19 in.. to 36 in 17 per cent. Ontario Goverment trimmings, 15 per cent.

Round steam boilers, standard trimmings, 28 per cent. Ontario Government trimmings, 25 per cent.

F.o.b. Montreal, Toronto, Guelph.

STEADY TONE REPORTED IN CORRUGATED SHEETS

Montreal.

Changes in the market tone for corrugated sheets are that demand is somewhat quieter than in previous weeks, that manufacturers now have more than ample stocks of flat sheets on hand to meet requirements. The call for these products continued quite active until just recently, and stock replenishment has been permitted through the continued arrivals to this market of galvanized sheets. The undertone of the market is

described as steady, rather than having a strong tendency as in past weeks. List prices and discounts are unchanged as follows:

CORRUGATED SHEETS—	Per 100 Sq. Ft.
No. 28 gauge	$6 50
No. 26 gauge	7 00
No. 26, U. S. gauge	8 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50

Less 10 per cent.

Lighter than 24 gauge and wider than 27 inches, 75c. per square extra.

STEADY TONE IN SOIL PIPE AND FITTINGS

Montreal.

Soil pipe and fittings remain at unchanged discounts with the undertone of the market continuing fairly firm. Manufacturers, however, now anticipate a steady market as the strong tendency, while still present to a degree, is not as marked as in previous weeks owing to an improved situation in the coal and pig iron markets. Demand for both pipe and fittings is good, and is keeping up remarkably well notwithstanding the advancing season. Present quotations are as follows:

SOIL PIPE—	
2 and 3 inch	35%
4 inch	35%
5 and 6 inch	35%
8 inch	net
FITTINGS—	
2 to 6 inch	45%
8 inch	net

PRIMARY METAL MARKETS STRENGTHEN LEAD GOODS

Montreal.

There is still a strengthening tendency in the undertone of lead and zinc products due to the market tone of metals in primary circles. Lead is still on an upward trend, and spelter remains very strong. Tin is again displaying a firm tendency and this metal, which enters into the manufacture of solders quite extensively, causes a somewhat stronger feeling in the market for these products. Manufacturers describe the general market as firm but with no indication as yet of higher prices. Following are unchanged price levels:

LEAD AND ZINC PRODUCTS—	
Lead pipe, per 100 lbs. up to 2"	13 00
Do., 2" to 8"	14 00
Do., 8" and over	15 00
Lead waste, per 100 lbs.	14 00
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	15%
Lead wool, lb.	0 13½
Lead sheets, 2½ lbs., sq. ft. lb.	0 10½
Lead sheets, 3 3½ lbs., sq. ft. lb.	0 10¼
Do., 4 to 8 lbs., sq. ft., lb.	0 09½
Cut sheets, ¼c. lb. extra and cut sheets to size, ¾c. lb. extra.	
Solder, guaranteed, lb.	0 25
Do., strictly, lb.	0 22
Do., commercial, lb.	0 22
Do., wiping, lb.	0 21
Do., wire, lb.	0 35
Zinc, sheets, casks	0 11
Do., broken lots	0 11½

PEAK OF SHEET PRICES HAS BEEN REACHED

Montreal.

The feeling that peak prices on galvanized sheets have been reached is gaining ground among local distributing circles. Up to the present no general revision in prices has been announced, although certain firms are quoting slightly less for larger inquiries, but opinions are expressed that lower levels will be reached in the not far distant future. A recession of a marked nature is not looked for, but more in line with a gradual decline, due largely to distributors themselves. It is again pointed out that stocks are growing until even now they are considered heavy in some quarters, and the time will shortly be on hand when sales will experience a slackening and dealers will not welcome the idea of carrying heavy stocks over the quieter period of winter months. The English market has supplied ample requirements and shipments from this source will in all probability continue in good quantity until the close of navigation. Domestic mills and centres to the south are also making progress in shipments so that the question of supplies is no longer attracting much attention.

The situation at the mills is still a fairly firm one, but further increases are not thought likely. A steady market for the following weeks at least appears more probable from this standpoint. Average local quotations are the following:

BLACK SHEETS—		
10 gauge, base	4 00	4 50
12 gauge	4 10	4 60
14 gauge	4 20	4 70
16 gauge	4 30	4 80
18-20 gauge	4 55	5 05
22-24 gauge	4 60	5 20
26 gauge	4 65	5 25
28 gauge	4 75	5 35

Sheets, 36" wide, 10c. per 100 lbs. extra.

GALVANIZED SHEETS—		
Queen's Head—		
28 gauge	7 25	7 75
26 gauge	7 00	7 50
24 gauge	6 40	6 90
22 gauge	6 05	6 30
18-20 gauge	5 35	5 85
Other Brands—		
10¾	7 00	7 50
28 U. S. gauge	6 60	7 10
26 U. S. gauge	6 30	6 80
24 gauge	6 15	6 65
22 gauge	6 15	6 50
16 gauge	5 85	6 35

Theses prices are for full bundles, an extra charge of from 25c to 35c is made for broken lots. Extra for sheets 3 ft. wide, 28 gauge and 10¾ oz., 20 cts. per 100 lbs. Further extra for sheets 4 ft. wide, according to gauge.

TIN PLATE—Coke	
20 x 28 x 100 lb. basis	12 50
20 x 28 IC, 112s	13 00
20 x 28 IX, 112s	15 00
20 x 28 IXX, 56s.	9 00
20 x 28 IXXX, 56s.	9 75
TERNE PLATE—	
20 x 28 IC, 112s.	14 00
CANADA PLATE—	
Dull, 52s	5 00
Dull, 60s	5 10
Blued ..2s ..5	5 25
Blued 60s	5 35
Welsh, polished, 52s	7 00
Welsh, polished, 60s	7 25
Galvanized, 52s.	7 25
Galvanized, 60s	7 75

CHANCES OF FURTHER RISE IN STEEL PRICES THOUGHT TO BE REMOTE

Montreal.

Not only in the sheet markets are higher prices considered unlikely, but a turn in this direction is also noticeable in bar iron and steel products. To some prevailing prices have "weathered the storm" and when no change to higher levels was made when the situation was much firmer, it is considered hardly probable that any revision will now be announced when the tendency is not as strong. Underlying factors in the steel market generally have been interesting during the past two months. Up until two weeks ago there was a decidedly firm tone evident, said to be responsible to higher fuel and increased labour costs, but the fact that basic pig on American markets is now reduced $2.00 per ton causes a little different aspect to the market. Although this might be termed a sudden turn, advices from Southern centres state that the former important coal question is no longer a serious one, the ability to secure cars for transportation now being the factor for consideration.

Rather than a sudden change to an easier development in the local market, dealers are inclined to believe that prices will remain on a steady basis because undoubtedly levels during the earlier spring and summer months previous to the coal strike were low in comparison to production costs, and prevailing prices represent a fair figure from a producing standpoint. Average local prices are as follows:

BAR IRON—	
Common bar iron, 100 lbs.	3 15
Refined iron	4 65
Irish finish machinery steel	3 20
Mild steel	3 15
Single reeled machinery steel	5 25
Band steel	3 65
Spring steel	4 75 8 50
Sleighshoe steel	3 15
Tire steel	3 35
Harrow tooth steel	3 30
Toe caulk steel	4 05
Mining tool steel, per lb.	0 20½
Black Diamond tool and cast steel, per lb.	0 20½

NOTE—Refined iron is approximately $1.50 per 100 lbs. over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs. extra.

Iron and steel, 3-16 in., and thinner, 50c. per 100 lbs. extra.

VERY LITTLE CHANGE IN ASBESTOS PRODUCTS

Montreal.

No notable change is recorded in the market for asbestos products, and trade is seasonable although not as active as last month. There is a certain amount of larger construction work contemplated during the winter and dealers look for a fair business in later months. Average quotations are unchanged as follows:

ASBESTOS PRODUCTS—	Off list prices
2 ply pipe covering	67½%
3 ply pipe covering	65%
4 ply pipe covering	60%
85% magnesia	45%
	Per bag
Boiler covering	1 50
	Per 100 lbs.
Asbestos sheathing	7 50

HIGHER PRICES ON TROUGH AND PIPE

Montreal.

An advance of a little over 10 per cent. is made in quotations on eavestrough and conductor pipe. The discount which was formerly 70 and 10 per per cent. off is now revised to 70 per cent. Conductor pipe elbows and sundry lines are unchanged at 60 per cent. off list prices. The undertone of the market for these materials has been very firm for some weeks past, and as pointed out

in recent issues of Sanitary Engineer new higher prices have been considered as pending. Flat galvanized sheets have been very firm in price, quotations recording various advances through the later summer months amongst different distributors. The present revision in trough and pipe is said to directly reflect the upward swing in flat sheets. Following are list prices and prevailing discounts:

EAVESTROUGH:

O. G. round and half round, per 100 ft. 8 in., $16.90; 10 in., $18.70; 12 in., $22.20; 15 in., $29.80; 18 in., $37.80.

O.G. Square bead, per 100 ft.: 8 in., $15.90; 10 in., $17.70; 12 in., $21.20; 15 in., $28.80; 18 in., $36.80.

Discount 70 per cent.

CONDUCTOR PIPE—Round, Plain and Corrugated. per 100 ft.; 2 in., $18.40; 3 in., $22.30; 4 in., $29.60; 5 in, $40.00; 6 in, $49.00; 6 in., $49.00.

Discount 70 per cent.

CONDUCTOR ELBOWS—

Plain or corrugated, price per doz.

2 in., $5.25; 3 in., $6.00; 4 in., $10.50; 5 in., $24.00; 6 in., $29.00.

Discount 60 per cent.

MODERATE TRADE NOTED IN RANGE BOILERS

Montreal.

Current sales of range boilers are said to be of moderate proportions, and while trade is not as active as in previous weeks is fairly well up to expectations for this season of the year. There is a steady tone in the market for these products since the revision of a few weeks ago, and following are list prices and discounts:

RANGE BOILERS:—

5	Gallon	$13.50
12	"	14.00
18	"	15.00
25	"	16.50
30	"	17.50
35	"	20.50
40	"	22.75
52	"	38.00
66	"	60.75
82	"	74.00
100	"	103.00
120	"	117.00
144	"	164.00
168	"	187.00
192	"	210.00

STEADY TONE IN COTTON WASTE MARKETS

Montreal.

A steady situation remains in cotton wastes, the undertone of the market continuing fairly firm with only minor fluctuations in raw cotton circles. Dealers are still of the opinion that prevailing prices will remain unchanged until later on in the year at least. Present quotations follow:

COTTON WASTE—Cream polishing, 18c. per lb.

White—XXX extra, 16c.; XX grand, 15c., XLCR, 14c; X Empire, 13c; X press, 11½c.

Colored—Fancy, 13½c.; Lion, 12c; Popular, 9c; Keen, 7½c.

Wool Packing—Arrow, 24c.; Axle, 20c.; Anvil, 16c.

Dominion Wipers—White cotton, 20c; colored cotton, 14c.

ENAMELED WARE QUOTATIONS NOMINALLY UNCHANGED

Montreal.

Unsettlement still prevails in the market for enameled ware products, and while prices remain nominally unchanged at 33 1-3 per cent. off, price concessions are common, especially for attractive orders. Although efforts have been put forth in some quarters to straighten out the matter, there seems little chance of any improvement at present and one local dealer stated that apparently the only procedure was to let the market run its own course. Trade is a little quieter, and unless some action is taken in the meantime the quieter period during the winter months will not remedy the present situation. Average prices are as follows:

ENAMELED WARE—

Sinks, roll rim—			
18 x 30			$23 00
Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$ 7 50	$ 7 40	$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in wide			51 40
Bath tubs, 5½ feet.			57 10
Lavatories—			
17x19 in. Apron F139 or P4045			15 30
18x24 in. Apron F154 or P3845 or P3847			23 60
18x21 in. Apron F169 or P4205			17 60
17x19 in. Roll rim. F241 or P4345			12 60

Less 33 1-3 per cent.

SLACKENING IN SEASONAL CALL FOR CEMENT

Montreal.

Current quotations on cement remain unchanged with the seasonal demand said to be somewhat less than a few weeks ago when contractors and other builders were rushing outside construction work through before a turn to colder weather and frost which is liable at any time now. Unchanged price levels are as follows:

CEMENT—

Car load lots, per bag, f.o.b.	
Per bag, f.o.b. steam cars	0 92
Per bag, delivered	1 00
Less car lots, per bag, f.o.b., yard	1 00
Per bag, delivered	1 10

Less 5 per cent.

Rebate of 20 cents for empty bags.

MODERATE TRADE IN CLOSET COMBINATIONS

Montreal.

The current demand for closet outfits is now described by distributors as spasmodic, the advancing season bringing a falling off in sales at certain times. Construction work in many instances is being rushed to completon, and requirements have already been taken care of. There is a fair amount of building for later months and this promises a moderate amount of business for dealers in these lines during the earlier winter. Quotations are nominally unchanged, but a series of price shading is still in evidence.

CLOSET COMBINATIONS—

Low down outfits,	each
Closet, standard outfit, oak	26 00
Do., post hinge seat	26 20
Do., oak vitro or Pussyfoot	26 00
Do., post hinge seat	26 20
Do., mahogany vitro or Pussyfoot, post hinge seat and cover	28 45
Do., vitreous china, oak post hinge seat and cover	28 45
Do., vitreous china, mahogany post post hinge seat and cover	28 45
Do., white Vitro or Pussyfoot, mahogany post hinge seat and cover	28 70
Do., enamelled iron tank, oak post hinge sea and cover	28 45
Do., enamelled iron tank, oak post hinge seat and cover	28 45
Do., enamelled iron tank, mahogany post hinge seat and cover	28 70
Add for ⅜ in valve on supply pipe	1 25
Add for spud	0 60
Add for reverse trap bowl	1 50
Add for syphon jet bowl	7 00
Deduct for supply pipe	0 80
Deduct for floor hinge	0 60
CLOSET BOWLS—	
Richelieu bowl	9 00
Washdown bowl with spud	10 60
Reverse trap bowl with spud	11 35
Syphon jet bowl with spud	17 00
CLOSET SEATS—	
Oak post hinge seat and cover	3 85
Oak wood strip seat and cover	3 50
Mahogany finish post hinge seat and cover	4 05
CLOSET TANKS—	
Low down, oak vitro or Pusysfoot, with fittings, less seat	13 20
White vitro or Pussyfoot with fittings, flush elbow and supply	15 65
Vitreous china tank with fittings, flush elbow and supply	18 00
Enamelled iron with fittings, flush elbow and supply	18 00

FIRM TENDENCY PREVAILS IN FITTINGS MARKET

Montreal.

A firm tone prevails in the market for pipe fittings, with demand still on a satisfactory basis. Although there has been a rumour of still higher prices, this nothwithstanding the revision of last month, there is now said to be no direct indication that another advance will develop. Unchanged discounts are the following:

PIPE FITTINGS—

Cast iron fittings	27%
Plugs, cast iron	27%
Do., solid	27%
Do., countersunk	27%
Bushings, cast	30%
Do., malleable	30%
Unions	45%
Flanged unions	27%
Flanged fittings	27%
Dart unions, black, 33 1-3%	
Dart unions, galv.	13%
Nipples, ⅛ to 4", close and short	55%
Do., long	60%
Do., 4½ to 8", close and short	45%
Do., long	50%
Couplings, 4" and under	25%
Do., 4½" and larger	5%

Malleable Fittings—

Piece list effective June 1st, 1922. Discount 70 per cent.

IMPROVED TENDENCY NOTED IN MOST INGOT METALS

Montreal.

Improved market positions are recorded in most ingot metals, antimony, spelter, lead and tin displaying a fair amount of strength. The advance in antimony is noteworthy, this metal having remained dull and unchanged for some months past. After a period of fluctuations tin is now thought to be on the road to further strength.

TIN.—This metal is showing a firmer tendency in London and higher prices are anticipated. Demand is only moderate but despite this prices locally are said to be more in line for an advance than a decline. Market is quoted at 36½ cents.

COPPER.—Copper is a little dull and producers appear willing to sell over the next few months at to-day's prices. Production is somewhat heavier and this has a tendency to keep prices down, although the market otherwise is considered in a fairly firm position. Quotations remain at 71¾ cts. for electro, and 17½ cts. for casting.

SPELTER.—Although on a higher price basis than formerly, spelter is now a little easier with spot metal quoted at 6¾ cents, East St. Louis. This higher level of prices is said to be partly caused by higher duty, but apart from this the market is firm and higher than the English market. Consumption is fairly

good locally with stocks none too heavy. Price is firm at 9 cents.

LEAD.—Lead continues very strong in the United States, but the London market is quieter and Canadian lead is now based on English competition. The higher duty now in force in the U. S. may divert foreign lead to Europe and this will probably result in lower prices in future. Local quotation 6¾ cents.

ANTIMONY.—This metal is firmer owing to the increased duty in the United States and stocks being somewhat depleted. Demand locally is very good with markets higher at 7¼ cts. for Chinese, and 7¾ cts. for high grade English.

ALUMINUM.—Aluminum is also a little firmer in the United States, but locally prices have not yet advanced to the same extent, owing to importation from Europe. Local market is quiet at 22 cents.

Toronto Markets

TORONTO, October 13.—A variety of price developments are again evident in the current sanitary and heating supply markets. The increases are noted on such products as radiators and boilers, discounts being revised on these goods. Boiler tubes are also stronger in tone and slightly higher levels are recorded in certain sizes of both lapweld and seamless. In addition it is reported that some manufacturers are considering an advance at an early date in quotations on valves and compression bibbs.

The list of declines includes galvanized sheets, black sheets and blue-annealed sheets. Cement prices are also slightly easier.

FAIRLY GOOD TRADE IN CLOSET OUTFITS

Toronto.

The market for closet outfits and fixtures has recorded very little change during the past week or so. There have been no revisions in quotations and while some price concessions are reported in certain quarters, this practice is not receiving as much attention as formerly. Efforts are being made in some instances to adhere firmly to the prevailing levels. Current business is stated to be fairly good, the advent of colder weather causing a final spurt to last-minute construction work of the dwelling house variety with a consequent call for sanitary wares.

CLOSET COMBINATIONS—	Each
Closet, standard outfit, oak	26 00
Do., with post hinge seat	26 20
Do., mahogany Vitro or Pussyfoot with mahogany post hinge seat and cover	28 45
Do., vitreous china, with oak post hinge seat and cover	28 45
Do., vitreous china, with mahogany post hinge seat and cover	28 70
Do., white Vitro or Pussyfoot, with oak post hinge seat and cover	28 45
Do., white Vitro or Pussyfoot with mahogany post hinge, seat and cover.	28 70
Do., enamelled iron tank with oak post hinge seat and cover	28 45
Do., enamelled iron tank with mahogany post hinge seat and cover..	28 70
Additions or reductions to above:	
Add for reverse trap bowl	1 50
Add for syphon jet bowl	7 00
For ¾ in. valve on supply pipe	1 50
[illegible] for supply pipe	60
Deduct for floor flange and bolts	0 60
CLOSET BOWLS—	
Washdown bowl with spud	10 60
Reverse trap bowl, with spud	12 10
Syphon jet bowl, with spud	17 00
[illegible] bowl	10 50
CLOSET TANKS, low down, Oak, Vitro or Pussyfoot tank, with fittings, less [illegible]	13 20
White Vitro or Pussyfoot tank with fittings, flush elbow and supply	15 65
[illegible] with fittings, flush	18 00
[illegible] with fitting, flush [illegible] and jacket	18 00
[illegible] SEATS—	
Oak post hinge seat and cover	3 85
[illegible] and cover	2 50
[illegible] and [illegible]	4 05
[illegible] and [illegible]	2 50

NO MARKED CHANGE IN ENAMELLED WARES

Toronto.

Although the current trade in enameled ware lines is described by some as keeping up fairly well for this time of the year, yet in other quarters business is admittedly reaching the quiet season. No changes have been announced in prices and the expression is noted that revisions are not looked for at the present time. The practice of price shading, however, is still evident in some instances, and with the advent of more restricted trade conditions, no improvement in this respect is expected unles a definite settlement is made. Prevailing prices and discounts follow:

ENAMELED WARE—			
Enameled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.			51 40
Do., 5½ ft.			57 10
Lavatories—			
17x10" Apron F139 or P4045			15 30
18x24" Apron F154 or P3845 or P3847..			23 60
18x21" Apron F169 or P4205			17 60
18x21" Roll Rim, F197, F199 or P4655-6			15 40
17x19" Roll Rim, F241 or P4345			12 60
Sinks, Roll Rim, 16x24 in.			18 10
Do., 18 x 30 in.			23 00
Do., 20 x 30 in.			24 70
Sinks, Flat Rim—	3 only	2 only	1 only
16x24	$7 60	$7 70	$7 80
18x30	8 50	8 60	8 70
20x30	9 70	9 80	9 90
Above prices, list, less 33 1-3 per cent.			
All steel enamel baths, 4 and 4½ ft			$14 00
Do., 5 ft.			15 00
Do. 5½ ft.			16 75
Steel bath quotations are net.			

MARKED PRICE RECESSIONS IN SHEET MARKETS

Toronto.

An easier trend has now developed in galvanized sheets, which has resulted in marked declines being announced this week. This recession in price is in direct contrast to the strength recently apparent in these markets, when the quotations steadily climbed for several weeks in succession. The current reduction affects galvanized sheets to the extent of fifty cents per cwt., while a downward revision is announced on black sheets, the decline in this respect being twenty-five cents, with a similar change noted on blue annealed sheets. Keen competition is stated to be one of the primary causes for this development, but the lateness of the season, combined with an improvement in supplies are described as other factors. Following are revised price levels:

BLUE ANNEALED SHEETS —	
10 gauge, base	4 25
12 gauge	4 30
14 gauge	4 35
16 gauge	4 40
BLACK SHEETS—	
18-20 gauge	5 05
22-24 gauge	5 10
26 gauge	5 15
28 gauge	5 25

A charge of 25c. per 100 lbs. is made for less than case lots. An extra 10c per 100 lbs. in also charged on sheets 26 in. wide.

	Premier and	Apollo
10¾ oz.	6 65	7 15
U. S. 28, base	6 25	6 75
U. S. 26	5 95	6 45
22 and 24	5 80	6 30
18 and 20	5 65	6 15
16	5 50	6 00
12 and 14	5 35	5 85

An extra is now charged on galvanized sheets, 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20 cents per 100 pounds. Other gauges show no change for different widths.

An extra 40 cents per 100 lbs., is charged for Keystone and Premier brands.

NEW DISCOUNTS ON RADIATORS AND BOILERS

Toronto.

Through a revision in discounts, higher levels are now in effect on radiators and boilers. This development has been outlined in recent issues of Sanitary Engineer, it being pointed out that the higher prices on raw materials entering into these products has caused a corresponding advance in production costs. The undercurrent of strength in this direction has been apparent for some weeks past, and the present announcement comes as no surprise. Foundry iron and fuel, as well as other elements, constitute the principal reasons for these changes. Following are lists with revised discounts:

RADIATORS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60.

Discount on 2, 3, 4 and 5 column standard sizes, 55 per cent for water and 56 per cent for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hosptial sizes 47 per cent for water and 48 per cent for steam.

Discounts on 1-column hospital size, water 33%; steam 34%.

Wall radiators—5 ft. $1.15; 6 ft. $1.10; 7 ft. $1.05; 9 ft. $1.05; 12 ft., $1.05. Discount 52 per cent.

BOILERS—

Water:

Round 60 per cent. off list. Square 20 per cent. off list.

Steam:

Round, 25 per cent off list; Square, 15 per cent. off list.

CEMENT PRICE EASIER; DEMAND SLACKENING

Toronto.

Cement prices have reached a slightly easier level, this recession being attributed to the recent readjustment in freight rates on certain basic commodities. A slight decline amounting to five cents per barrel is now in effect on

(Continued on page 32)

Mueller Drum Traps

If you could buy a better Drum Trap from a concern you know is reliable, for the same price as the ones you now use, you would be likely to consider the matter favorably at least.

Mueller for many years has been making Quality Goods only. When a new product is added to the line, certain tests have to be passed before the name "MUELLER" is allowed on it. In the case of Mueller Drum Traps, each one is tested under pressure before leaving factory.

4″x 8″ is fitted with brass cover with sunken square as shown above, or with raised square on cover if desired.

2″x 6″ size is furnished with extension cover as illustrated.

Your orders will be given preferred attention.

H. MUELLER MFG. CO., LIMITED, SARNIA, ONT.

Water, Plumbing and Gas Brass Goods and Tools.

American Factory at Decatur, Illinois, U. S. A. Branches, New York and San Francisco

Mueller Metals Co., Port Huron, Mich., Makers of "Red Tip" Brass Rod; Brass and Copper Tubing; Forgings and Castings in Brass, Bronze and Aluminum; Die Castings in White Metal and Aluminum; also Screw Machined Products.

TORONTO MARKETS

(Continued from page 30)

the local markets, this change bringing prices to $3.63 per barrel in carload lots. The movement of cement is now reaching a more moderate stage as the volume of construction work requiring heavy quantities of cement is almost completed for this season, and requirements are now mainly in small lots. Following are the current price levels:

CEMENT—

	Toronto.
Car load lots.	
Per barrel, delivered	3 63
Less car lots.	
Per barrel, f.o.b. yard	4 35
Per barrel, delivered	4 55

Single bags, $1.15 each; 4 bags to barrel.
Extra charge of $1.50 per load on less than 24 bag lots.
Rebate of 20 cents for empty sacks.

STRONG UNDERTONE IN BOILER TUBE MARKET

Toronto.

Both the tone of the basic material markets and the improvement in demand, sustain the trend of current boiler tube prices. Some further revisions have been made in the list, following the slight upward change noted a few weeks ago. Distributors point out that the undertone is undoubtedly on a better basis than formerly owing to the general call for tubes required for repair purposes and also construction purposes at this season of the year. Raw material prices are also continuing their upward climb, and while the situation remains more or less nominal, the following average price levels are described as undoubtedly firm:

BOILER TUBES

	Seamless	Lapweld
1 inch	19 00	....
1¼ inch	20 00	....
1¼ inch	22 00	....
1½ inch	24 00	....
1¾ inch	24 00	23 00
2¼ inch	24 00	....
2½ inch	26 00	23 00
3 inch	34 00	27 50
3 inch	32 00	26 00
3¼ inch	36 00	33 00
3½ inch	38 00	32 00
4 inch	55 00	40 00

SOIL PIPE REFLECTS RAW MATERIAL TREND

Toronto.

The soil pipe market continues to reflect the upward climb of certain raw material prices, and while these basic elements have halted their march toward higher price levels, the movement is still being reflected in quotations on the finished products. Owing to the advanced fall activity in building circles, the call for soil pipe and fittings is described as keeping up in remarkably good volume for this season of the year. There has been no further change in local quotations on these lines, the revised discounts of a few weeks ago still being in effect, as follows:

CAST IRON SOIL PIPE

2 inch	Less 33 1-3%
3 inch	Less 33 1-3%
4 inch	Less 33 1-3%
5 and 6 inch	Less 33 1-3%
8 inch	net

FITTINGS

2 to 6 inch	Less 45 per cent

REVISED PRICE LEVELS ON "KERR" VALVES

Toronto.

Revised price levels are now in effect on the Kerr Engine Co., line of valves and compression work. Revised discounts have been issued on the following:—

Radiator valves .....54 per cent. off list.
Brass valves, screwed 16/ 10 per cent.
Keystone, I.B.B.M., Gate 25/ 10 per cent.
Globe radium disc .....23/ 10 per cent.
Angle, radium disc.... 23/10 per cent.
Disc globe and angle (copper alloy)
..... 20/ 10 per cent.

MODERATE TRADE NOTED IN TIN PLATES

Toronto.

Trade tin plate is described as on a moderately quiet basis, but is generally in keeping with expectations for this season of the year. There have been no further price developments, quotations being more or less steady. A heavier volume of trade is noted in Welsh tin plate than formerly, combined with slightly lower importations from the United States. While the eastern market offers better opportunity in this direction, the Welsh products have appeared in larger quantities also in the Coast sections, the canning industry reporting that shipments can be made via Panama in competition with the Pittsburg mills. Current local prices continue as follows:

PLATES, CANADA—	Per box
Ordinary, 52 sheets	4 90
Dull, 60 sheets	5 00
Blued and oiled, boxes 52's	5 20
Do., boxes, 60's	5 30
WELSH CANADA PLATES—	
Cold polished, 18 x 24, 52's	6 5
Cold Polished, 18 x 24, 60's	6 50
PLATES, COKE TIN—	
IC, 20 x 28, 112 sheets	12 50
IX, 20 x 28, 112 sheets	15 00
IX, 20 x 28, 56 sheets	8 50
PLATES, CHARCOAL TIN—	
IX, 20 x 28, 112 sheets	10 00
IXX, 20 x 28, 56 sheets	12 00
PLATES, TERNE—	
IC, 14 x 20, 112 sheets	12 00

SLACKENING IN CALL FOR CORRUGATED SHEETS

Toronto.

No changes have been made in corrugated sheets, but some slight developments have taken place in the market tone. The demand for corrugated during the past week or so is described as quietened down considerably from the brisk activity noted in previous weeks. Consumers' needs are said to have been pretty well taken care of, and the rush for this season is considered over. There is still a fair amount of business for this season of the year, however, at the following unchanged levels:

CORRUGATED SHEETS—	Per 100 Sq. Ft.
No. 28 gauge	6 50
No. 26 gauge	7 00
No. 26. U. S. gauge	8 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50

Less 10 per cent.
Lighter than 24 gauge and wider than 27 inches, 75c. per square extra.

MAY BE ADVANCE IN COMPRESSION GOODS PRICE

Toronto.

Certain manufacturers of brass valves, compression bibbs and kindred lines, are stated to be considering a slight advance of a general nature in prices. The tendency in this direction has been noted in recent market reports appearing in Sanitary Engineer, any movement of this nature being chiefly the result of the firmer trend in virgin metal circles. No revisions in prevailing price levels have been announced since the change in discounts on the Jenkins line of valves, and following are current quotations:

VALVES—	Per cent.
Compression work, standard	45
Fuller work, standard	30
Bath cocks, compression	41
Do., Fuller	25
Flatway stop and wastecocks, stand'd.	54
Roundway stop and waste cocks std.	46
Brass steam cocks, standard ½" to 2"	50
Do., 2½" to 3"	43
Globe, angle and check valves, std.	25
Mueller globe, angle and check	25
Mueller composition disc steam valves	33
J.M.T. valves, screwed	10 10
J.M.T. gate valves, screwed	16 10
Jenkins gate or straightway, screwed	16 10
Jenkins, globe, screwed	10 10
Radiator valves, standard	58
Do., removable disc	58
Emco, J. D., rad. valves, screwed	33
Emco swing check, ⅜" and ½"	40
Do., other sizes	33
Webster gate valves, screwed	33
Emco globe valves, std.	25
Emco globe valves, J.D., screwed	33
Basin Cocks—	
No. 0 and 1 Fuller pattern	30
Quick opening No. 3633	50
No. 3623, plain or index handle	34

GOOD FALL TRADE IN PIPE FITTINGS

Toronto.

No further changes have been announced in quotations on pipe fittings, but it is noted that the undertone of the market continues on a much firmer basis than formerly. Wrought nipples and couplings are stated to be exceptionally strong, chiefly owing to the upward trend of the raw materials, although no further increases are in sight, as yet. The movement of these products is described as fairly good and quite up to general expectations for this season of the year. The average call for pipe fittings has kept up in better volume this year because of the marked activity in small building circles and the consequent improved call for these goods. Following are current unchanged discounts:

PIPE FITTINGS—	Per Cent.
Cast iron fittings	27
Plugs, cast iron	27
Do., solid	27
Do., countersunk	27
Bushings, malleable	30
Do., cast	30
Unions, ¼ in. to 2 in	45
Do., 1¼ in., 2¼ to 4 in.	45
Flanged unions, std.	27
Flanged Fittings	30
Dart unions, blk., ¼ to 2 in.	34
Do., ⅛ in., 2¼ to 4 in.	23
Do., galvd., add to black	30
Nipples, blk., and galvd. ¼ to 4 in. close and short	55
Do., 4½ in. and larger	45
Do., long, ⅛ in. to 4 in.	60
Do., 4½ in. and larger	50
Do., running thread	35
Couplings, 4 in. and under	25
Do., 4½ in. and larger	5

MALLEABLE FITTINGS—
New piece list, effective June 1, 1922.
Discounts, Class A, less 60 per cent.
Discounts, Class B, less 70 per cent.
Discounts, Class C, less 70 per cent.

(Continued on page 34)

Ready for Business

we can ship immediately

King and Royal Boilers

for Hot Water and Steam

and

Imperial Radiators

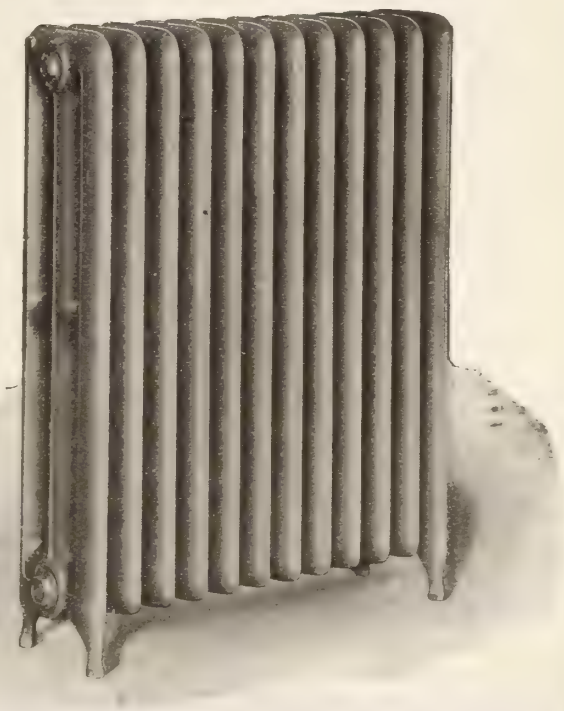
We have acquired the plants and equipment of the former Steel and Radiation Ltd., at St. Catharines and Toronto, and are continuing the manufacture of these well known lines.

In design, in economy of fuel, in their ability to deliver heating satisfaction day in and day out for years, King and Royal Boilers are in a class by themselves. Heating Engineers throughout the country have long been familiar with these lines and know their worth.

Let us send you full particulars—or better still, send us specifications for your next job.

The Officers and Officials of the New Company are:

J. E. McAllister, President.
E. T. Wingate, General Manager.
E. M. Stokes, Secretary.
W. R. Blackhall, Consulting Engineer.
W. H. Davis, Plant Superintendent.



The Imperial Radiator Company, Limited

228 St. Helen's Ave.
Toronto - Ontario

Works at St. Catharines

TORONTO MARKETS

(Continued from page 32)

STEADY TREND TO COTTON WASTE PRICES

Toronto.

As has been the case for the past two or three months, the raw cotton markets continue to fluctuate and these changes only affect the tone of the cotton waste markets to a minor degree. The general undertone, however, is described as firm, and while there has been no change in quotations, wastes, as a cotton by-product are said to be experiencing a fair demand. The movement is steady and generally up to expectations. Following are unchanged prevailing price levels:

COTTON WASTES—

Cream, polishing	0 18
White, XXX	0 18
XX	0 16
X	0 15
XC	0 14
XXX, extra	0 16
XX, grand	0 15
XLCR	0 14
X, Empire	0 13
X press	0 11½
Colored, No. 1	0 13
No. 17	0 12
No. 1A	0 11
No. 1B	0 10
Fancy	0 13½
Lion	0 12
Standard	0 10½
Popular	0 09
Keen	0 07½

Above lines subject to trade discount for quantity.

FIRM TREND REMAINS IN LEAD PRODUCTS

Toronto.

The recent firmness in the virgin metals and especially pig lead, has resulted in strengthening the current market position of lead and zinc products. Up to the present, however, no further revision in prices on the finished goods has been announced, it being stated that the movement in primary metal circles has not yet been of such extent as to affect domestic price levels. While some fluctuations have been noted, the general trend is in an upward direction, and the following local prices on lead products are considered quite firm. Business is described as well up to expectations, one distributor stating that "there is no marked activity but trade is pretty good."

LEAD AND ZINC GOODS—

Lead pipe, list, per lb.	0 13
Lead, waste pipe, list, per lb.	0 14
Do., over 8 in., list, per lb.	0 15

Lead pipe is subject to a discount of ten per cent.

Lead traps and bends less, 15 per cent.

Lead sheets, 4 to 6 lbs., sq. ft. in rolls, lb.

Cut sheets, ½c to ¾c lb. extra and cut sheets to size, 1c lb. extra.

Solder wire, per lb.	0 30
Do., commercial, lb.	0 22½
Do., strictly, lb.	0 21
Do., guaranteed, lb.	0 24
Do., wiping, lb.	0 21
Zinc sheets, per lb. 0 09	0 10

FAIR ACTIVITY NOTED IN RANGE BOILERS

Toronto.

A fair degree of activity is generally reported in range boilers, although the seasonal movement is also described as keeping up well for this time of the year. The strong undertone in this market, caused by the rising cost of raw materials, has recorded a lull, which in some quarters is considered as temporary while in others it is attributed to the advancing fall season. The flat galvanized sheets have ceased to climb in price, and no further advances in quotations on range boilers and other galvanized products are therefore in sight, at present. Following is the unchanged list and discounts:

RANGE BOILERS—

Size.	List Price.
5-gallon	$13 50
12 to 15 gallon	14 00
18-gallon	15 00
25-gallon	16 50
30-gallon	17 50
35-gallon	20 50
40-gallon	22 75
52-gallon	38 00
66-gallon	60 75
82-gallon	74 00
100-gallon	103 00
120-gallon	117 00
144-gallon	164 00
168-gallon	187 00
192-gallon	210 00

Discounts, Standard weight, 45 per cent.
Extra heavy, 35 per cent.

FAIR DEMAND FOR NON-FERROUS SCRAP

Toronto.

The slight improvement noted in the scrap material markets, has not advanced to any marked stage, as yet. As a matter of fact current trading continues of a very moderate nature, it being only in some departments that a better feeling has been recorded.

The prevailing demand for non-ferrous scrap is reported as fair, while prices remain firm. On the other hand, however, the scrap rubber business is extremely dull. Steelmaking scrap has been disappointing to dealers, but demand for cast iron has been good. The following are the usual averages of dealers' buying prices for large quantities:

SCRAP MATERIALS—

Scrap Iron		
Gross Tons—		
Heavy melting steel (Hamilton)	$13 00	$13 50
Borings and turnings	6 00	7 00
Rerolling rails	12 00	13 00
Scrap pipe	5 00	6 00
No. 1 railroad wrought	10 25	11 25
Steel turnings (Hamilton)	9 75	10 25
Agricultural malleable	12 00	13 00
Railroad malleable	13 00	14 00
Net tons—		
No. 1 cast	20 00	21 00
Stove plate	16 00	17 00
Grate bars	12 00	13 00
Standard car wheels	15 00	16 00
Scrap Metals		
Heavy copper and wire	10 75	11 25
Light copper	9 25	9 75
No. 1 composition	9 00	9 50
No. 1 comp. turnings	7 25	7 50
Light brass	3 50	4 50
Heavy yellow brass	5 50	6 50
Heavy Lead	5 25	5 75
Tea lead	3 25	3 75
Scrap zinc	4 50	4 75
Scrap Rubber.		
Boots and shoes	2 00	....
Lumbermen's rubber boots	1 25	1 50
Auto tires	0 25	0 50
Solid tires	0 60	1 00

WROUGHT PIPING ON FIRM PRICE BASIS

Toronto.

Manufacturers of wrought piping state that too much emphasis cannot be placed upon the firmness of existing price levels on pipe and the undercurrent of strength apparent in these markets. While no further upward revsiion is being contemplated at present, List No. 56 remains on a stable basis. It is pointed out that raw materials have increased in price approximately ten dollars per ton, while in comparison the quotations on wrought piping have only been advanced on the basis of $4.00 per ton.

The delivery situation is improving and orders are shipped within two weeks from date. With regard to a shortage of smaller sizes recently apparent, this condition is also being overcome, although stocks in some sizes are depleted as fast as renewed. The demand for pipe during the season has been mainly confined to smaller types represented in houses and similar building, heavy construction work such as calls for large and heavy make of piping being of a more limited nature.

WROUGHT PIPE

Price List No. 56 August 23, 1922

Standard Buttweld Pipe S/C

Per 100 feet

Size	Steel Blk	Gen. Galv.	Wrot. Blk.	Iron Galv.
⅛ in.	6.00	8.00		
¼ in.	3.96	6.00	7.20	9.30
⅜ in.	3.96	6.00	7.20	9.30
½ in.	5.02	6.55	7.31	8.93
¾ in.	6 10	7.82	8.86	10.70
1 in.	8.50	11.22	12.58	15.30
1 ¼ in.	11.50	15.18	17.02	20.70
1½ in.	13.75	18.15	20.35	24.75
2 in.	18.50	24.42	27.38	33.30
2½ in.	29.25	38.61		
3 in.	38.25	50.49		
3½ in.	49.68	64.40		
4 in.	58.86	76.30		

Standard Lapweld Pipe S/C

Per 100 feet

Size	Steel Blk.	Gen. Galv.	Wrot. Blk.	Iron Galv.
2 in.	22.20	27.75	31.08	37.00
2½ in.	32.76	41.54	46.80	56.16
3 in.	42.84	54.32	61.20	73.44
3½ in.	50.60	66.24	72.68	89.24
4 in.	59.95	78.84	86.11	105.73
4½ in.	68.58	87.63	1.04	1.24
6 in.	1.04	1.32	1.57	1.88
7 in.	1.38	1.79	2.02	2.45
8L in.	1.45	1.88	2.13	2.58
8 in.	1.67	2.16	2.45	2.97
9 in.	2.04	2.62	2.97	3.59
10L in.	1.89	2.43	2.75	3.33
10 in.	2.43	3.13	3.54	4.28
5 in.	79.92	102.10	1.21	1.45

LULL IN ACTIVITY IN BAR IRON MARKET

Toronto.

Local activity in bar iron and steel is described as considerably quieter, this change being attributed in certain quarters to the reports of possible warfare in the Balkans, while other warehouses ascribe this condition as a parity to the situation which has developed in primary steel centres. A more or less sudden reversal to form has taken place and while no weakness has been apparent, yet prices have ceased to climb. Locally, the base quotation varies between $3.25 and $3.40, with the former level being noted on larger purchases. Following are unchanged average quotations:

IRON AND STEEL—

Mild steel bars, base	325	3 40
Mild steel bands, 3-16 base	3 75	3 90
Bar iron, base	3 25	3 40
Angle, iron base	3 35	3 50
Horseshoe iron	....	3 90
Tire steel	....	3 50
Spring steel	7 00	8 00
Sleigh shoe steel	....	3 40
Toe caulk iron	....	4 10
Hoop steel	4 25	4 50
Norway iron		12 50
Crucible cast sheet steel		28 00
Mining Drill steel		18 50
Cast tool steel, high grade		30 00
Do., do., Medium		18 00

(Continued on page 36)

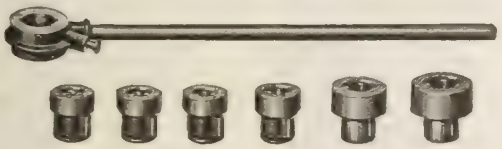
Let These Beavers Earn Extra Money On Your Piping Contracts

Beavers are money making pipe tools. With no loose parts to fuss or bother with, they turn into extra profit the time spent in changing or hunting for lost or mislaid dies and bushings.

Beavers are standard equipment in leading shops the world over. They are regarded as a piece of money making equipment—not simply devices to thread or cut pipe. You'll find them doing the brunt of the work wherever perfect threads are cut on all kinds of pipe.

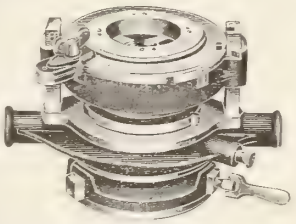
Your Jobber stocks Beavers—every leading jobber does. Tell him to send over a Beaver when you buy your next die stock. Also write us for the Beaver catalog—the most complete pipe tool catalog issued.

No. 3—Beaver Jr. Ratchet 1/8 to 1 inch



Even if you have a hundred other pipe tools you need this one. The only die stock of its kind threading 1 inch and all smaller sizes. Threads ⅛, ¼, ⅜, ½, ¾ and 1 inch, using separate die heads that are quickly removed and quickly inserted. Buy just the die heads you need most—add others as your work requires. The ideal all around tool for threading in close places or at the bench. Always ready. Read complete description in the Beaver catalog.

No. 26—Beaver Ratchet 1 to 2 inch

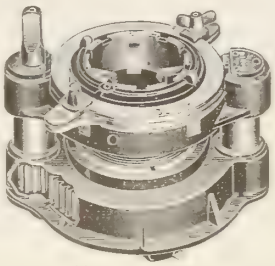


The Standard High Grade Easy Working 1 to 2 inch Ratchet Die Stock. Instantly adjustable. Complete within itself — no loose parts. Narrow receding dies enable one man to thread two inch with one hand. The most popular 2 inch die stock made—in constant use in all fields where 1 to 2 inch pipe is threaded. On the market since 1907. Cuts a thread while changing dies in other tools. Also made without ratchet (No. 25 Beaver). Parts of these two tools are interchangeable. Two big money makers. Write for the catalog describing them.

No. 6—Beaverette ¼ to ¾ inch

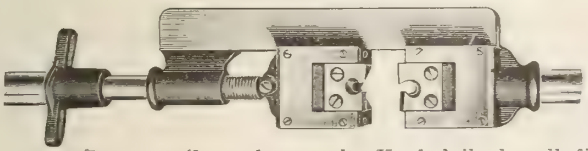
The only die stock made threading ¼, ⅜, ½ and ¾ inch without changing dies or bushings. Complete within itself—no loose parts — cuts a perfect thread while changing dies in other tools. 15 years on the market — 200,000 in use. Two set of dies used to cover the two thread pitches are always in the tool ready for use. Instantly adjustable. The catalog tells all about it.

No. 41—Beaver 2½ to 4 inches



Really a pipe threading machine — light enough to be easily portable and threading 4 inch as easily as 1 inch in old style tools. This is made possible by the narrow receding dies used in connection with a gear. Instantly adjustable. Built for hard use and dependable service. The most widely used 4 inch die stock you can buy. No. 61, 2½ to 6 inch; No. 80, 4½ to 8 inch, and No. 90, 9 to 12 inch, are of the same design. All are adjustable one-man tools. Complete description is given in the catalog.

Beaver Square End Pipe Cutters



No. 1 cuts ⅛ to 1 inch; No. 5 cuts ½ to 2 inch without burrs with cutting knives feeding automatically. Cuts pipe square easier and quicker than wheel or roller cutters—no burrs to ream or file. Threading dies start easier and wear longer on a Beaver cut—outwears many sets of cheaper tools. Cutting knives give hundreds of cuts and are easily resharpened. Used daily by all firms who know the value of time and labor-saving equipment. Also made with ratchet but of different design. No. 10 Ratchet cuts 2½ to 4 inch—No. 15 cuts 2½ to 6 inch. Very clearly described and illustrated in the catalog.

Beaver Die Stocks and Pipe Cutters cost just a little more than other pipe tools—but they quickly pay for themselves in saving time and labor and are thereafter a constant source of profit. You need them with your other money making equipment.

The Borden Company

501 Dana Ave.

Warren, Ohio, U.S.A.

BEAVER

The Easiest Way to Cut Good Threads

TORONTO MARKETS

(Continued from page 34)

COPPER PRODUCTS ON STEADY PRICE BASIS

Toronto.

No further revision has been announced in prices on copper and brass products since the upward climb of quotations on rods and tubing. These goods, however, continue to remain on a firm basis, owing to the strengthening effect of the virgin metal markets, coupled with the steady decrease in the visible supply of scrap copper. Current trade in these lines is reported as very fair, and up to expectations for this period of the year. Following are prevailing quotations:

BRASS—	
Sheets base, per lb.	0 23
Rods, base, per lb.	0 22
Tubing, base, per lb.	0 30
COPPER—	
Rods, base, per lb.	0 30
Soft sheets, plain, 1 oz. and heavier, lb.	0 29
Do., plain tinned, 16 oz. and heavier, per lb.	0 36
Do., polished, and tinned, 16 oz. and heavier, lb.	0 41
Tubing,	0 33

EAVESTROUGH BUSINESS IN FAIR VOLUME

Toronto.

Current trade in eavestrough and conductor piping is still described as fairly good for this time of the year, although the brisk movement noted during recent weeks is now subsiding somewhat with the advent of colder weather and the consequent recession in building activity. The tone of the market remains fairly firm, although the current decline in flat galvanized sheets is expected by some to reflect in the market for the finished products in the near future. There has been no further change since the last revision in discounts on trough and pipe. Prevailing quotations follow:

TROUGH (EAVE)—

O. G. Square Bead—

Per 100 ft.		Per 100 ft.	
8 inch	$15 90	15 inch	$28 80
10 inch	17 70	18 inch	36 80
12 inch	21 20	inch	

O. G. Round and Half Round

8 inch	16 90	15 inch	29 80
10 inch	18 70	18 inch	37 80
12 inch	22 20		

Less 70 per cent.

PIPE (CONDUCTOR)

Plain, round or corrugated.

	Per 100 ft. in 10 ft. lengths.
2 in., in 10 ft. lengths, list	18 40
3 in., in 10 ft. lengths, list	22 30
4 in., in 10 ft. lengths, list	29 60
5 in., in 10 ft. lengths, list	40 00
6 in., in 10 ft. lengths	49 00

Less 70 per cent.

ELBOWS (CONDUCTOR)

2 inch, list	5 25
[illegible]	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00

[illegible] per cent.

FAIRLY FIRM TONE IN INGOT METAL MARKETS

Toronto.

The strong lead and spelter markets constitute the feature development in the current ingot metal markets. There have been no additional price revisions, however, although a slight undercurrent of improvement is also noted in several of the other non-ferrous metals, namely tin and aluminum. Generally speaking the ingot markets remain on a fairly firm basis.

COPPER.—The undertone in this market is generally reported to have eased slightly due to the smaller buying both on domestic and primary accounts. Certain brass manufacturers are stated to have secured stocks of scrap, but the chief factor is found in standard and refined being easier at London. Local quotations are steady at the unchanged level of 17½ cents.

TIN.—While the London tin market is described as firm, domestic conditions remain dull. There have continued to be minor fluctuations recorded. A reduction was noted in the world's visible supply of tin during September of 1,297 tons, and some improvement is looked for in the general position of this metal. Local prices remain at the level of 37 cents.

LEAD.—While marked strength was exhibited in lead in certain quarters due to shortage of spot, this market is now relatively quieter, although still on a firm basis. The prevailing local quotation of $7.50 is generally considered strong.

SPELTER.—The statistical position of zinc remains strong, but active demand from consumers has quietened down. There is no general weakening, however, prices both on primary and domestic markets holding unchanged at the recent higher levels. The local quotation is around 9 cents.

ANTIMONY.—Prices on antimony still climb, and as a result the new local quotation is 7½ cents. In comparison with former levels, this revision indicates that the undertone of this metal is stronger. The gain may not be permanently retained, however, as primary centres record that no great activity is in evidence and offerings have appeared at slightly below the current level.

ALUMINUM.—Domestic trading in aluminum is stated to be as quiet as ever, no appreciable change having been recorded. Prices in the United States market, however, show signs of strengthening and slightly higher levels are rumored owing to advances in duty and tariff changes. The local level continues around 21 to 22 cents.

Winnipeg Markets

WINNIPEG, October 13.—Current trade is described as moderate. Building activities are keeping up in good volume for this season of the year and there is a fair movement of certain building materials. The tone of primary markets is showing a firmer tone especially on compression goods, corrugated sheets, eavestrough, conductor pipe and radiators. Boiler tubes are showing a firmer tone. Radiators have shown an advance of ten per cent.

COTTON WASTE MARKET SHOWS STEADY TONE

Winnipeg.

A steady situation continues in cotton wastes as the undertone of the market is steady. Present prices however are likely to remain unchanged until later in the season.

MODERATE DEMAND FOR CLOSET REQUIREMENTS

Winnipeg.

There is a moderate demand for closet fixtures, and with the approach of fall weather there is expected to be a falling off in the demand. No changes have been made in quotations.

SOIL PIPE AND FITTINGS IN QUIET TRADE

Winnipeg.

A very moderate volume of trade in soil pipe and fittings is reported. Building operations are slowing down and this is reflected upon the current demand. With raw materials advancing the tone of the market is firm.

HIGHER QUOTATIONS ON RADIATORS AND BOILERS

Winnipeg.

Due to the higher prices on raw materials entering into the manufacture of these products an advance of ten per cent. has been recorded on both steam and water radiators.

FIRM TONE CONTINUES IN CORRUGATED SHEETS

Winnipeg.

The corrugated sheet market is reported firm and indications point to an advance in the near future.

BOILER TUBE PRICES SHOW FIRMER TONE

Winnipeg.

The firmer tendency in the steel industry is expected to be reflected in higher quotations on boiler tubes. There is a slight improvement in the demand and stocks are becoming depleted. Higher prices are quoted at primary centres and with new arrivals, quotations will show an advance.

BUILD SEWER SYSTEM

London, Ont.—Ratepayers of Manor and Highland Parks have decided to undertake the construction of a storm water sewer system through the two parks. At a well-attended meeting, the matter was thoroughly discussed and a majority of 36 favored the scheme. It is expected that $10 000 will be expended this year and the system will then be extended as the need is recognized.

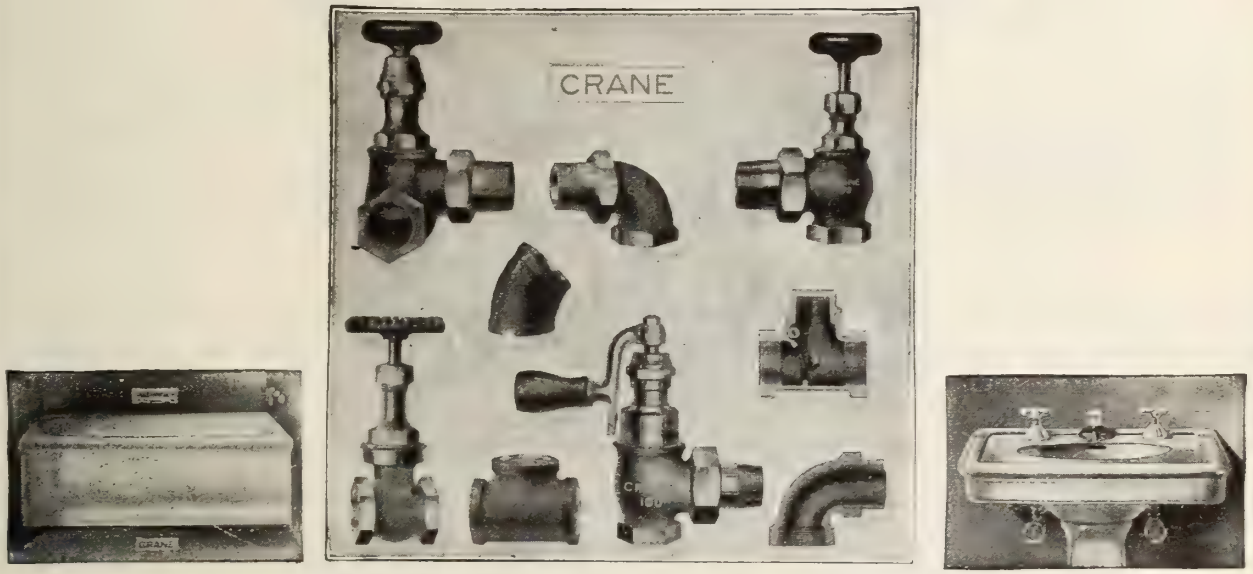
"What do you think of the two candidates?" asked one elector of another.

"What do I think of them?" was the reply, "Well, when I look at them I'm thankful only one of them can get in."

CRANE SERVICE

facilitates the selection of dependable material for the installation of

Heating & Plumbing Equipment



The small or large building can be equipped with Crane products with equal assurance that each fixture complies with the demands of safety and sanitation.

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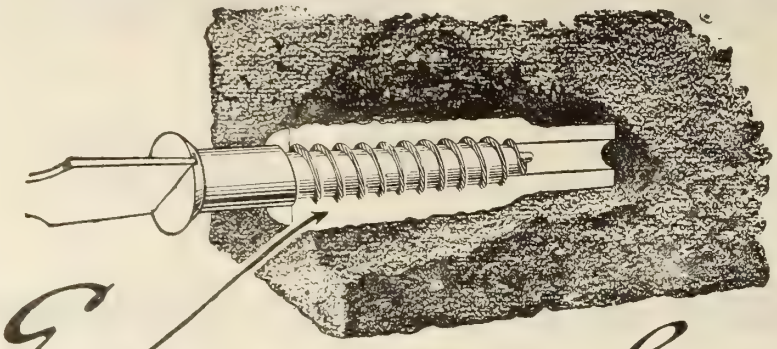
18



Expansion means Grip!

The efficiency of Rawlplugs is proven by their more extensive use. Many plumbers are now demanding Rawlplugs for use in materials where the screw ordinarily will not hold, such as tile, concrete, glass, metal, etc.

Use Rawlplugs on your next job. They mean satisfactory work—thus satisfied customers. They cost less and have greater holding power than other fixing devices.

Write us for fuller particulars.

FIX IT WITH

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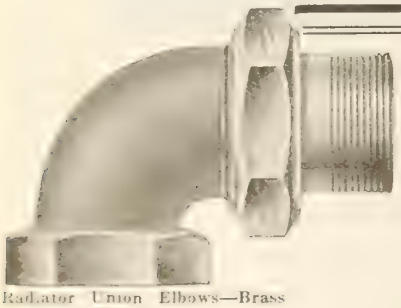
INVENTIONS LIMITED Sole Agents for The Rawlplug Co. of Canada, 128 Bleury St., Montreal, Que.



Radiator Union Elbows—Brass No. 41.

Kerr N. P. Union Elbows for Radiators

In construction, design and quality of material and workmanship, these Elbows are equal to our popular line of Radiator Valves.

They have the standard angle or centre to face, and assemble on Radiators with equal facility with our Standard Steam and Hot Water Radiator Valves, thus avoiding pipe fitters' troubles with valves of long or short centre to face dimensions. Kerr Union Elbows and Union Radiator Valves make for a first class heating job.

Each Valve and Elbow is tested before it leaves our works.

Ask for them, and see that you get them.

The Kerr Engine Co., Limited

Valve Manufacturers - Walkerville, Ontario

B.O.T.

CLOSET COMBINATIONS

ARE

SUPERIOR
TO ALL OTHERS

QUALITY - DURABILITY - SERVICE

Genuine Golden Oak and Mahogany-finished Tanks and Seats

White Tanks in Vitreous China and Enamelled Iron, Blanco White Sheet-covered Seats

B. O. T. Patented Reverse Trap Bowls

CANADIAN BRASS COMPANY LIMITED

GALT - TORONTO

USE

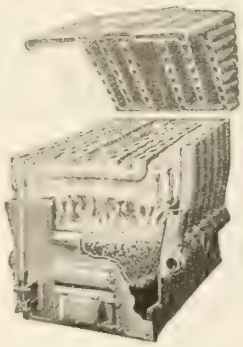
TESTED Soil Pipe

IT COSTS NO MORE AND YOU KNOW THE JOB IS RIGHT

Manufactured by

FORWELL FOUNDRY, LTD.

KITCHENER, ONT.



Long Fire Travel and Short Coal Bills.

The less up chimney heat there is, the more boiler heat there is going to be.

"Up chimney" heat means coal waste.

In the illustration you will see that the Burnham Boiler fire travel is three times back and forth on **both sides** of the boiler.

This means that the bulk of the heat is out of the gases before they enter the flue.

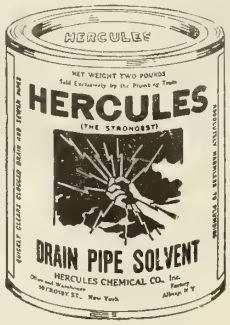
Lord & Burnham Co. Limited of Canada

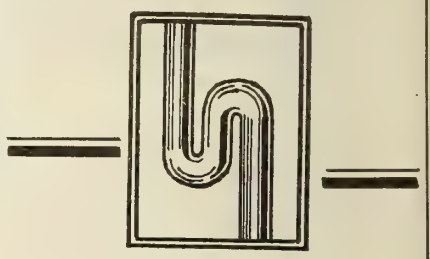
(Boiler Department)

Harbor Com. Bldg. Toronto.

Burnham Cosy Comfort Heat 88

Factory— St. Catharines, Ontario.





STOPPAGE ELIMINATION IN A JIFFY!

Hercules Drain Pipe Solvent gets to the source of trouble and eliminates it quickly, profitably and without muss or fuss.

NO FUMES—Works With Cold Water

Don't wait until other methods have failed. Use HERCULES in the beginning and make a PROFIT on the job.

Universally sold and endorsed by Plumbers and Plumbing Jobbers throughout the country.

Send for a sample can.
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W. H. Cunningham & Hill, Limited
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Hot Water Boilers
ARE
Built

For entire satisfaction
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For bigger profits to
Heating Engineers

—It pays to concentrate on the "Daisy."

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BEAVER BRAND
Porcelain Enamel Ware

—Your Guarantee of Quality—

Beaver Brand Enamelware by its ability to meet the highest demands for service under all conditions, has established itself in the confidence of the public to such an extent that each month witnesses an ever-increasing demand for products of Beaver manufacture.

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E. B. Plewes
197 Princess St., Winnipeg

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United Brassfounders & Engineers, Ltd., Manchester, Eng.

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Canada Metal Co., Ltd., Toronto.

AIR VALVES
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W. H. Cunningham & Hill, Ltd., Toronto.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
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J. H. Wiliams Co., Brooklyn, New York.
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Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.

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Canada Metal Co., Ltd., Toronto.
Gendron Mfg. Co., Toronto.

BENDING SPRINGS
W. H. Cunningham & Hill, Ltd., Toronto.

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Gurney Foundry Co., Limited, Toronto.
Lord & Burnham Co., Ltd., Toronto.
Spencer Heater Co., Ltd., Toronto, Ont.
Warden King, Ltd., Montreal.

BOILER FEED REGULATORS
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C. A. Dunham Co., Ltd., Toronto.

BOILER STANDS
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J. H. Williams & Co., Brooklyn, N. Y.

BOLTS AND NUTS
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BRASS GOODS, VALVES, ETC.
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Canada Metal Co., Ltd., Toronto.
C. A. Dunham Co., Ltd., Toronto.
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James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto. Hamilton.
United Brassfounders and Engineers, Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd,. Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.
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Canada Metal Co., Ltd., Toronto.
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Empire Mfg. Ltd., London and Toronto.
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Standard Sanitary Mfg. Co., Ltd., Toronto, and Hamilton.

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Fittings, Limited, Oshawa.
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Kerr Engine Co., Walkerville.
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Gurney Foundry Co., Limited, Toronto.
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Standard Sanitary Mfg. Co., Ltd., Toronto. Hamilton.
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Standard Sanitary Mfg. Co., Ltd., Toronto. Hamilton.

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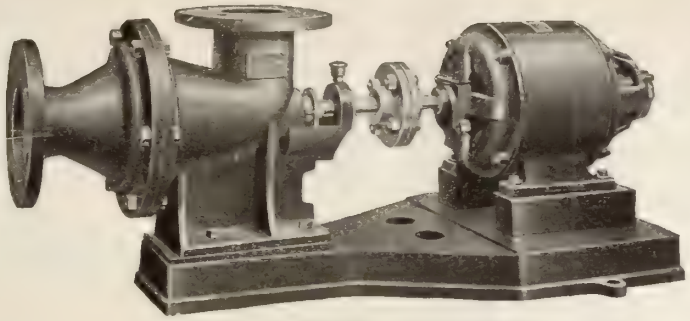


TYPE "2E"

The Atlas Positive Circulator

Secures Steady, Perfect Circulation

The Atlas Positive Circulator has been designed especially for Forced Hot Water Systems of heating.

It will handle large quantities of water at low heads and is therefore more suitable for forced circulation than any other type of pump. It will bring the water back to the boiler at a temperature of more than 20 degrees higher than by gravity circulation, resulting in great savings of coal annually.

The Atlas is particularly valuable in buildings where there are long runs of piping.

The Atlas can be readily installed in any hot water system, new or old; it is simple and compact, takes up little room and has a low operating cost.

It is equipped with Monel Non-Corrosive shafting, Phosphor bronze bushings, S.K.F. Ball bearings and a conical aluminum impeller designed to allow a through gravity flow when the motor stops.

Atlas Circulators are now being recommended, specified and successfully used throughout Canada and Newfoundland in Churches, Apartment Houses, Swimming Pools, Greenhouses and Government institutions.

Let us quote you.

THE ATLAS ENGINEERING AND MACHINE COMPANY, LIMITED
TORONTO, ONT.

PIPE, SOIL AND FITTINGS
Anthes Foundry Co., Toronto and Winnipeg.
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings, Limited, Oshawa.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto. Hamilton.
Toronto Hardware Mfg., Co., Toronto.
Warden King, Ltd., Montreal.

PIPE THREADING TOOLS AND MACHINERY
Borden Canadian Co., Toronto.
A. B. Jardine & Co., Hespeler.
W. H. Cunningham & Hill, Ltd., Toronto.

PIPE WRENCHES
J. H. Williams Co., Brooklyn, New York.
W. H. Cunningham & Hill, Ltd., Toronto.

PLUMBERS' TOOLS
J. H. Williams & Co., Montreal, Que.
W. H. Cunningham & Hill, Ltd., Toronto.

PNEUMATIC WATER SUPPLY TANKS
Empire Mfg. Co., London and Toronto.

PORCELAIN WARE
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

PUMPS
W. H. Cunningham & Hill, Ltd., Toronto.
The Westco Pumps Limited, Toronto.
United Brassfounders & Engineers, Ltd., Manchester, Eng.

PUMPING SYSTEMS, AUTOMATIC
Canada Metal Co., Ltd., Toronto.
The Westco Pumps, Limited, Toronto.
Beaton & Cadwell Mfg. Co., New Britain, Conn.

RADIATORS
Gurney Foundry Co., Limited, Toronto.
Lord & Burnham Co., Ltd., Toronto.
Warden King Ltd., Montreal.

RADIATOR HANGERS
Healy Ruff Company.

RADIATOR NIPPLES
Fittings, Limited, Oshawa.

RADIATOR TRAPS (STEAM)
C. A. Dunham Co., Ltd., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.

RIVETS
Fittings, Limited, Oshawa.

RANGE BOILERS
Standard Sanitary Mfg. Co., Ltd., Toronto. Hamilton.
The Canadian John Wood Mfg. Co., Toronto.
Toronto Hardware Mfg. Co., Toronto.

REDUCING PRESSURE VALVES
C. A. Dunham Co., Ltd., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers, Ltd., Manchester, Eng.

ROOF FLANGES AND FLASHINGS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

SEPTIC TANK VALVES AND SYPHONS
Anthes Foundry Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

SINK BRACKETS
Fittings, Limited, Oshawa.

SOCKETS, WIRE ROPE
J. H. Williams & Co., Montreal, Que.

SOLDER
Canada Metal Co., Ltd., Toronto.

STEAM SPECIALTIES
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
Kerr Engine Co., Walkerville, Ont.
United Brassfounders & Engineers, Ltd., Manchester, Eng.

STEAM TRAPS
C. A. Dunham Co., Ltd., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.

STOVES
Gurney Foundry Co., Limited, Toronto.

STOVES, GAS AND COAL
Gurney Foundry Co., Ltd., Toronto.

SWIVELS, HOOK
J. H. Williams & Co., Brooklyn, N.Y.

TANKS, STEEL
The Canadian John Wood Mfg. Co., Toronto.

TANK BULBS, (RUBBER)
Canada Metal Co., Ltd., Toronto.
W. H. Cunningham & Hill, Ltd., Toronto.

THUMB SCREWS AND NUTS
J. H. Williams & Co., Brooklyn, N.Y.

TOOLS
Wolverine, Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto. Hamilton.
J. H. Williams & Co., Brooklyn, N.Y.
W. H. Cunningham & Hill, Ltd., Toronto.

TORCHES
W. H. Cunningham & Hill, Ltd., Toronto.

UNIONS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers, Ltd., Manchester, Eng.

VAPOR HEATING SYSTEMS
C. A. Dunham Co., Ltd., Toronto.

VISES, CHAIN, CLAMP, MOUNT
J. H. Williams & Co., Brooklyn, N.Y.

VITRO TANKS
Galt Brass Co., Ltd., Galt.

VACUUM SYSTEMS OF HEATING
C. A. Dunham Co., Ltd., Toronto.

VALVES
Empire Mfg. Co., London and Toronto.
Jenkins Bros., Ltd., Montreal, Que.
The Kerr Engine Co., Walkerville, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.

WATER SUPPLY SYSTEMS
Empire Mfg. Co., London and Toronto.
Standard Sanitary Mfg. Co., Ltd., Toronto Hamilton.
The Westco Pumps, Limited, Toronto.

WASHERS
Canada Metal Co., Ltd., Toronto.
W. H. Cunningham & Hill, Ltd., Toronto.

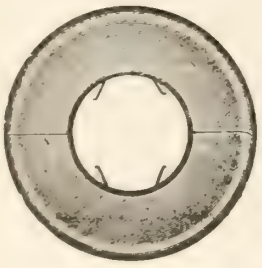
WASHING MACHINES
Gurney Foundry Co., Ltd., Toronto.

WRENCHES, SET, DROP FORGED, ENGINEERS, SOCKET AND CHAIN PIPE
J. H. Williams & Co., Brooklyn, N.Y.

WROUGHT COUPLINGS AND NIPPLES
Canada Metal Co., Ltd., Toronto.
Fittings, Ltd., Oshawa.

Quality The Beaton and Cadwell Mfg Co New Britain Conn Service

The Greatest Value Obtainable in Ceiling Plate



TOP VIEW
No. 10.

Our No. 10 Split Ceiling Plate can be attached to mains and risers at the very last, and is not exposed during completion of building on the floors, thereby making an attractive finish. Made in all sizes from 1-4 inch to 6 inches inclusive.

The No. 10 A Narrow Flange Plate is a steel hinged plate flange 3/4 inch wide. Highly finished. Especially designed for [illegible] connection "narrow." Made in sizes from 1-2 to 2 inches inclusive. Write for catalogue showing our complete lines of specialties.

GEM NO. 4 AUTOMATIC AIR VALVE

[illegible] to adjust and works automatically.

GEM NO. 4

The Beaton & Cadwell Mfg. Co.

New Britain, Conn.

Eastern Agents [illegible] Birks Bldg., Montreal. Western Agents: A. E. [illegible] Winnipeg, John. E. T. Yewdall Co., Vancouver, B. C. Ontario Agents [illegible]

Saves Tearing Up the House and Lawns

Desolvo is the modern way. It gains goodwill for you by clearing clogged or frozen pipes easily, quickly, in a common-sense way. The old method of tearing up floors, lawns, shrubbery and flower beds until the point of trouble was reached, could not help but leave a feeling of resentment in the customers who were so served.

It saves you money and time on your job to serve customers quickly and agreeably by using Desolvo.

THE CHAMBERLAIN DESOLVO CO., LTD.
35 Richmond St. E., Toronto

Eastern Canada Representatives: Richardson and Bureau, 52 Craig St. West, Montreal. **Ontario Representative: F. L. Mayne,** 875 Trafalgar St., London, Ont. **Western Canada Representatives: N. D. McPhail & Co.,** Standard Bank Bldg., Vancouver, B.C.

It Cuts Fuel Bills——

Because of its even compactness Ames Holden Hair Felt fits firmly, evenly and securely around the pipe—a perfect fit—a clean job—an efficient insulator against heat losses.

Specify Ames Holden Hair Felt every time.

Let us send you a free sample. It will convince you.

Ames Holden Felt Co. Ltd.

Kitchener - - - Ontario

Get A Good Grip On It!

There you are again using the ordinary wrench—trying to fix that basin under a great handicap — and you bang your knuckles. Well, if you are working under such conditions it's your own fault for here is a wrench that will fill your every requirement. **SAVE TIME AND MONEY BY USING**

THE ANDREE BASIN WRENCH

The handiest ever invented. For applying and removing basin nuts quickly and easily. Grips automatically — no adjustment necessary. Also for turning small pipe. Operates either right or left. Guaranteed as claimed. Strong and durable, 8 inches long, weight only 14 oz. For removing ball cocks from tanks, flush valve tubes and hush tubes from ball cocks, etc. without removing fittings. Ask your jobber or write us direct.

Andree Basin Wrench Co.

1113 Lake St., Oak Park, Ill., U.S.A.

The Everlasting Veneer Toilet Seat

Strong, Clean Hygienic

This reliable, dependable toilet seat is made of 7 and 9-ply, air-seasoned wood veneer, held together by our special wood cement. This cement is proof against heat, cold or dampness. The veneering is distributed according to the strain and wear required of the different parts. The Everlasting Seat will never crack, warp or split.

It is a splendid seat for use in cold, damp basements where closets must be installed. The Everlasting Toilet Seat will meet, and successfully resist, these severe conditions of moisture, changing temperature, etc.

Canadian Veneering Company, Incorporated

Acton Vale Quebec

The Foundation of a Better Canada

It is in a nation's homes that is found the strength or the weakness of the land; not in armies or navies, nor in glittering cities, nor in weekly bank clearings.

"You can measure" says an authority, "the progress of any civilization by the character of its homes."

Sanitary Engineer is striving always to raise the standard of Canadian homes.

A house equipped with modern plumbing and modern plumbing fixtures is, invariably, adequately furnished otherwise.

More and more, every day, the modern home is being "built around the bathroom."

Through its editorials and the advertising matter in its pages Sanitary Engineer is constantly urging more and better sanitary equipment—which makes for better homes, better citizenship—the foundation of a better Canada.

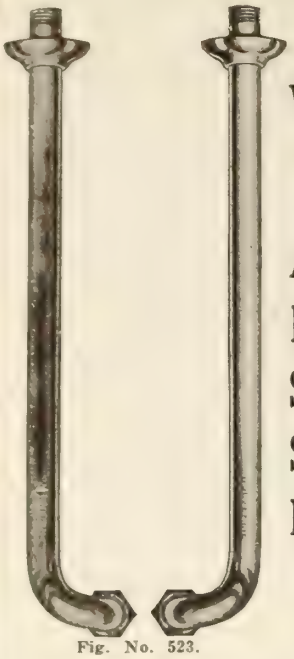


Fig. No. 523.

Fig. No. 458

WOLVERINE SUPPLIES

Adjustable
Flexible
Save Time
Save Material
No Leaks

It

Pays to
Specify
And
Insist On
Wolverine
Products

Fig. No. 685R.

Fig. No. 683R

WOLVERINE
LIMITED

76 Nelson St. Toronto-

Your Metal and Rubber Lines should Bear the Name "Wolverine" Time Tested—

Mail or Telephone Your Requirements

Fig. No. 34

THE TRADE

Is Respectfully Cautioned

to specify

RIVETED RANGE BOILERS

Made by the old reliable

TORONTO HARDWARE MFG. CO., LIMITED

WROUGHT PIPE

Suitable for the approaching period of building activity, road construction, etc. This is a line of great importance in making successful, profitable contracts Our C. T. Brand of Wrought Pipe has been

THOROUGHLY INSPECTED

by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes ⅛-in. to 4-in. Black or Galvanized. We also manu facture nipples and couplings, black and galvanized, in all sizes.

Ask your Jobber for C. T. Brand Wrought Pipe

Canadian Tube and Steel Products Co., Ltd.
Operating Canadian Tube and Iron Co., Limited
Works at Lachine Canal, Montreal

SANITARY ENGINEER'S

unique circulation as proven by the A.B.C. Audit is due to our honest effort to give the retail trade the best possible service.

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The Classified Column.

2 Cents a word or figure
Minimum $1.00.

ADDRESSING MACHINE FOR SALE—WE HAVE A COMPLETE Belknap Addressing Equipment for sale. This equipment is still in use in our Subscription Department and is in excellent working order. We have placed an attractive price on this outfit, and would advise manufacturers or merchants having a mailing list to let us tell you how it will save you money. We will give a guarantee as to the proper working condition of this equipment. The MacLean Publishing Co., Ltd., 143 University Avenue, Toronto, Ontario.

TAYLOR SAFES FOR SALE—RARE OPPORTUNITY TO secure a safe at small cost. They are in splendid condition. Inside dimensions and prices are as follows: 15" deep, 2 ft. 6" wide, 3 ft. 11½" high, fitted with built-in- compartment. Price $250.00. 18" deep, 2 ft. 8" wide, 4 ft. 5" high, fitted with steel compartment. Price $200.00. Apply Box No. 701, Sanitary Engineer, Toronto.

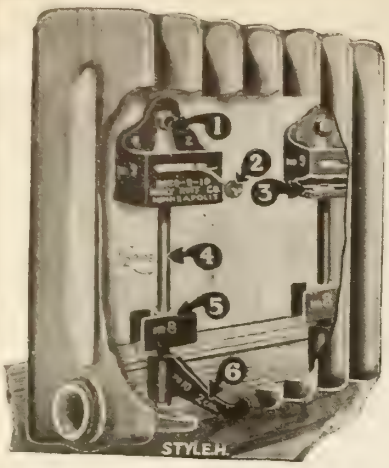
CASH IN ON THIS COLUMN

Want to sell your Business?
Want a partner with Capital?
Want some good used equipment?
Want to sell some tools or equipment that you are not using?

Sanitary Engineer's

CLASSIFIED COLUMN
WILL HELP SOLVE
YOUR PROBLEM—

SEND ALONG THAT AD TODAY



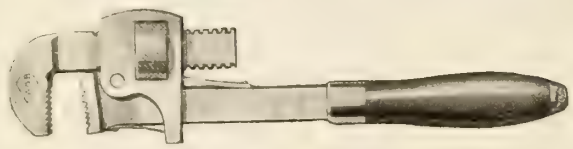
E-Z Radiator Hanger

Manufactured in Canada — **Reasonable in Price**

(1) One Bolt.
(2) Invisible Washer.
(3) Horizontal Adjustment.
(4) Vertical Adjustment.
(5) Baseboard Adjustment.
(6) Made for Wall and Column Radiation.

HEALY-RUFF CO. — **Minneapolis, Minn.**

J. H. Leonard, Tribune Bldg., Winnipeg.
D. G. Brison, Standard Bank Building, Vancouver.
A. Walker, 514 McLean Bldg., Calgary.
E. T. Flanigan, 229 College St., Toronto.
Eager Coombs & Co., Ltd., Halifax, Can.
Shaver Bros., Booth Bldg., Ottawa.
S. T. Hadley, 304 University Street, Montreal.



Choose The Right Tool

You can't expect a cheap, inefficient wrench to hold and turn rusted pipe or fittings. It's bound to slip or break.

WILLIAMS' STILLSON WRENCH is dependable; it is made for heavy duty. Drop-forged from special steel, carefully hardened and tempered, its sturdy strength is proof against the knocks and strains of hard service. The tough teeth retain their sharpness; they "bite" instantly, yet release readily.

For grip, power and endurance, choose Williams' Stillson. Wood and Steel Handle patterns — eight sizes, 6 to 48 inches. Made in Canada.

J. H. WILLIAMS & CO., LTD.

"The Wrench People"

77 Thorold Rd., St. Catharines, Ontario

NO. 1 "TWEED"
Sanitary Closet with mahogany finished seat and lid with nickel-plated hinges.
The special "Tweed" chemical used in connection with the closet, destroys every trace of odor. Easily installed, as no plumbing required.

Out-of-Town Business

Only those who have to live the year around in a locality without city conveniences realize the hardships involved, and it is among these that you can do a profitable business with the

"TWEED" SANITARY CLOSET

A city convenience at a fraction of the cost—anybody can afford one. Compactly packed for shipment and easily handled.

We also make an attractive line of "Tweed" Baths and other home conveniences.

Write for price lists and literature.

Steel Trough & Machine Co., Ltd.
TWEED. ONT., CANADA
LOUIS A. PAYETTE.
304 University St., Montreal.
Quebec and Eastern Representative

The Martin Portable Vise Stand

Light in weight— only fifty pounds

Can be carried anywhere without inconvenience.

Put up in two seconds; no bolts, screws or fastenings needed.

Use the Martin Portable Vise Stand where pipe or conduit must be bent, cut or threaded.

10 days free trial.

If your jobber can't supply you—write us.

H. P. MARTIN & SONS
803 W. 12th Street OWENSBORO, KY.
CANADIAN REPRESENTATIVE:—**L. F. Mayne,** 875 Trafalgar Street, London, Ontario.

FARRFHERN ATMOSPHERIC STEAM HEATING SYSTEMS

Are a simple scientific method of circulation, air elimination, and condensation return.

Following natural laws, this is accomplished with a minimum of mechanical equipment.

There are no traps on radiator returns.

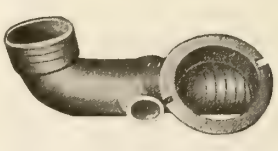
There are no air vents on radiators.

Consequently, the contractor is relieved of needless and expensive responsibilities, which will make his Contracts more profitable.

The Farrfhern is a System that eliminates Troublesome come backs, it will create mutual satisfaction.

Send us the plans for your next prospect and submit a proposal for a Farrfhern System on it.

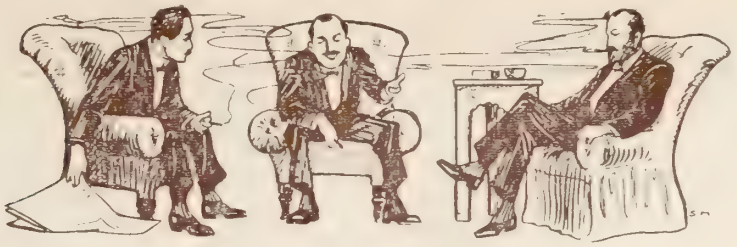
J. E. FARRELL
Sales Representative 210 Galley Ave., Toronto.



Tapped Closet Bend

Easier to attach
More permanent
Cost less

FOUNDRY
TRADE GALT K-T ONT MARK



The Tale of Tightwad Tim

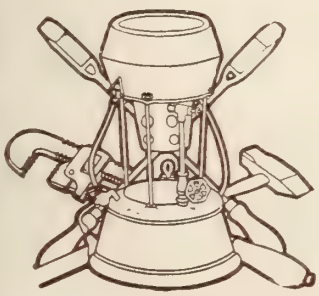
TIM
WAS A TIGHTWAD
PLUMBER.
* * * * * * *
PEOPLE SAID
HE WOULDN'T SPEND
A DIME
TO SEE AN EARTHQUAKE—
THEY SAID
TO PART HIM FROM A
QUARTER
WAS AS PAINFUL
AS TAKING AWAY HIS
LEFT LUNG.

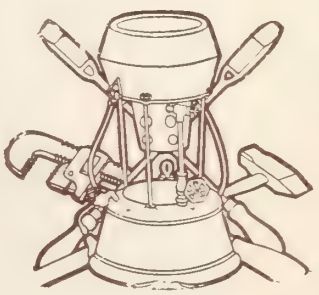
TIM
AS YOU SEE
WAS HARDBOILED—
SO WHEN WE TRIED
TO SELL HIM AN
ALLPRISER
HE GAVE US
A MEAN LOOK
AND THE "NOTHING DOING" SIGN.

BUT—
WE KEPT ON HIS TRAIL
FOR YEARS;
AND ONE DAY,
IN A MOMENT OF
WEAKNESS,
MUTTERING LOW MOANS,
HE SEPARATED HIMSELF
FROM THE PURCHASE PRICE.
DID IT HELP
TIM'S BUSINESS?—WELL—
LAST WEEK
TIM'S SHOP WENT UP
IN SMOKE
AND, AFTER THE INSURANCE
ADJUSTER
HAD GONE
THE FIRST THING TIM BOUGHT
WAS ANOTHER
ALLPRISER.
* * * * * * *
TIM
IS A TIGHTWAD
PLUMBER.

K. B. Allison - Allpriser

4 Irwin Ave. - Toronto, Ont.





Transparently White

Poor quality bathroom fixtures no more pay than poor quality clothes.

The name Vitro is synonymous with highest quality.

The tremendous sale of this New Design Vitro Tank is an evidence that the plumbers of Canada appreciate this fact and further that the people of Canada can be sold the best.

The New Vitro Tank will not crack, chip or otherwise wear out. Ten years after its installation—barring unfair breakage—it will still be as smooth, white and beautiful as when new.

Your Jobber Sells Them

VITRO
NO TROUBLE
TANK

Galt Brass Co., Ltd.

GALT, ONTARIO

Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XVI. PUBLICATION OFFICE, TORONTO, NOVEMBER 1, 1922 No. 21

Pride of Possession

THIS new "Emco" White Tank adds to the sightliness of any bath room, and notably increases the owner's pride of possession.

Here are some points about the New "Emco" White Tank that your customers will appreciate.

Made of our guaranteed composition that retains its gleaming whiteness—a smooth glossy surface that cleans as easily as china. The interior fittings are machined from the best red metal and include the well-known Victory ball cock.

Hundreds of these "Emco" White Tanks will be installed within the next few months—get **your** share of this business.

Ask your jobber or write direct to us.

We are manufacturers of about 20,000 articles, including valves, pipe fittings and steam specialties.

Empire Brass Mfg. Co., Ltd.

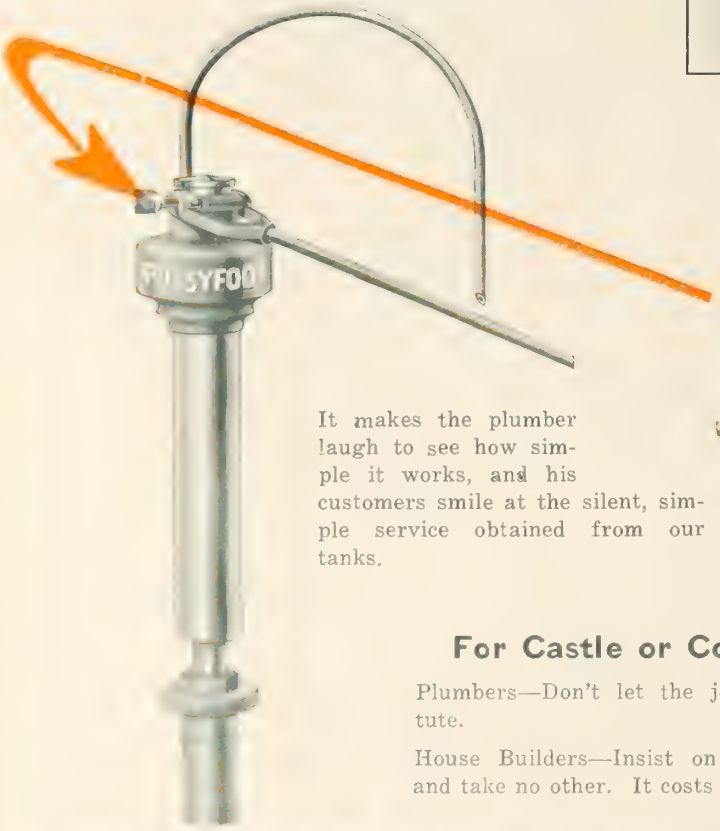
London and Toronto, Canada

GUARANTEED EMCO CLOSET TANKS

"Plumbers"——

"Pussyfoot"

Started Right
with
Three Beautiful Designs
and
Sales of 10,000 Tanks
Resulted in the First Year

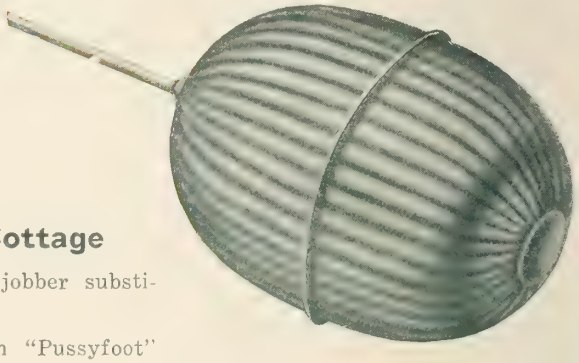


Our New Valve

Silent Simple Serviceable

Is the latest thing in fittings. Not a screw or useless part. Only one bolt; in one moment your valve can be inspected.

It makes the plumber laugh to see how simple it works, and his customers smile at the silent, simple service obtained from our tanks.



For Castle or Cottage

Plumbers—Don't let the jobber substitute.

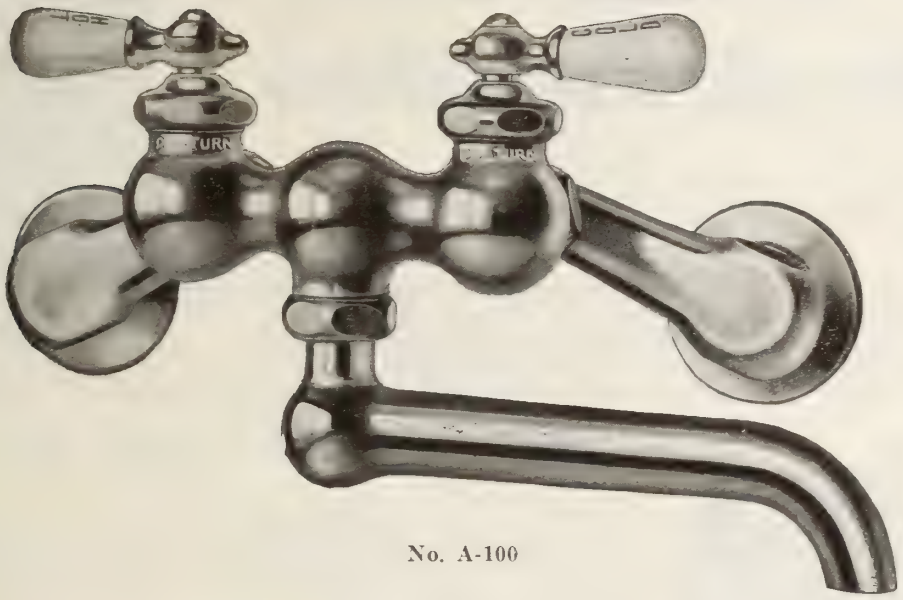
House Builders—Insist on "Pussyfoot" and take no other. It costs you no more.

THE CANADA METAL COMPANY
LIMITED

Montreal Hamilton TORONTO Winnipeg Vancouver

CHRISTMAS

A STRIKING GIFT SPECIAL



No. A-100

CLASSIC QUATURN MIXING FAUCET with **swinging spout** for Kitchen and Pantry sinks, nickel-plated with China Handles. Connections for ½" I.P.

MEASUREMENTS

Distance between Inlet Connections centre to centre:

4" to 8⅜" on 8" fixture.
4" to 10⅜" on 10" fixture.
4" to 12⅜" on 12" fixture.

The Classic fits any sink and extends into the sink only 3⅜". The spout has a radius of 6" and **can be pushed back out of the way when not in use.**

Every Plumber should have one of these Classic Faucets in his window in advance of the Holiday Season—a most practical holiday remembrance—**a Sink Ornament**—a sanitary gem.

It appeals on sight to all progressive housekeepers—a display means sales—the neighbors see it—the neighbors want it.
Ask your Jobber or **get in touch with our nearest Sales Office.**

The Wallaceburg Brass & Iron Manufacturing Co., Limited

WALLACEBURG, ONT.

TORONTO OFFICE
10 Wellington E. Phone Main 2355.
Mr. L. N. Vanstone.

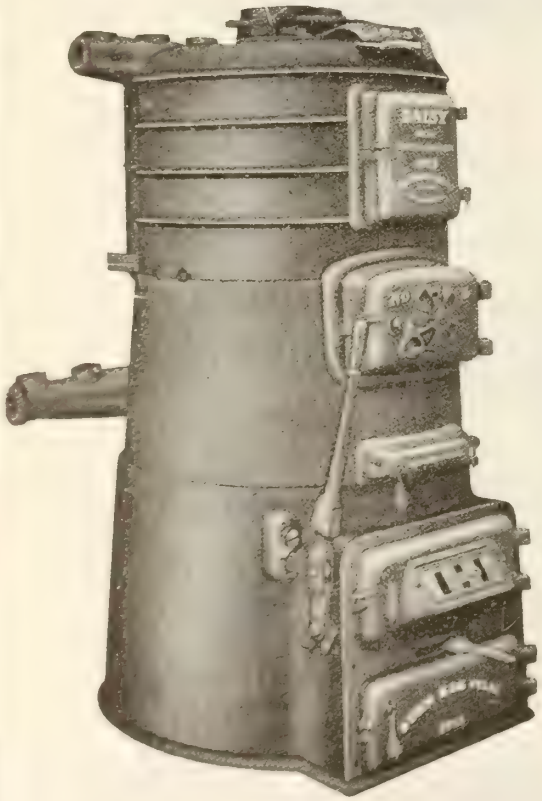
MONTREAL OFFICE
10 Victoria St. Phone Uptown 945.
Mr. G. M. Price.

WINNIPEG
Moncrieff & Endress, Ltd.,
Galt Bldg. Phone A-9135.

Leading their Classes are the "Warden King" Boilers & Radiators

They will reflect great credit on your own business.

There are great opportunities at this time of the year for wide-a-wake plumbers, because nothing is so appreciated by the owners of homes as a reliable heating system.



Be sure then that you specify "Daisy" boilers and "Viking" radiators. They lead to happiness and satisfaction for your customers.

No matter how many friends you have made already, you can count on more after installing these boilers and radiators.

It's up to you to turn the demand for heating systems to your own profit. Drive home to every builder the importance of proper installation.

Send us your specifications.

WARDEN KING LIMITED
MONTREAL

Branch Office: 136 Simcoe St., Toronto

Heat Insurance!

Fuel Economy—

Dependability—

You Get All This in the

'King' and 'Royal'

types of Hot Water and Steam Boilers

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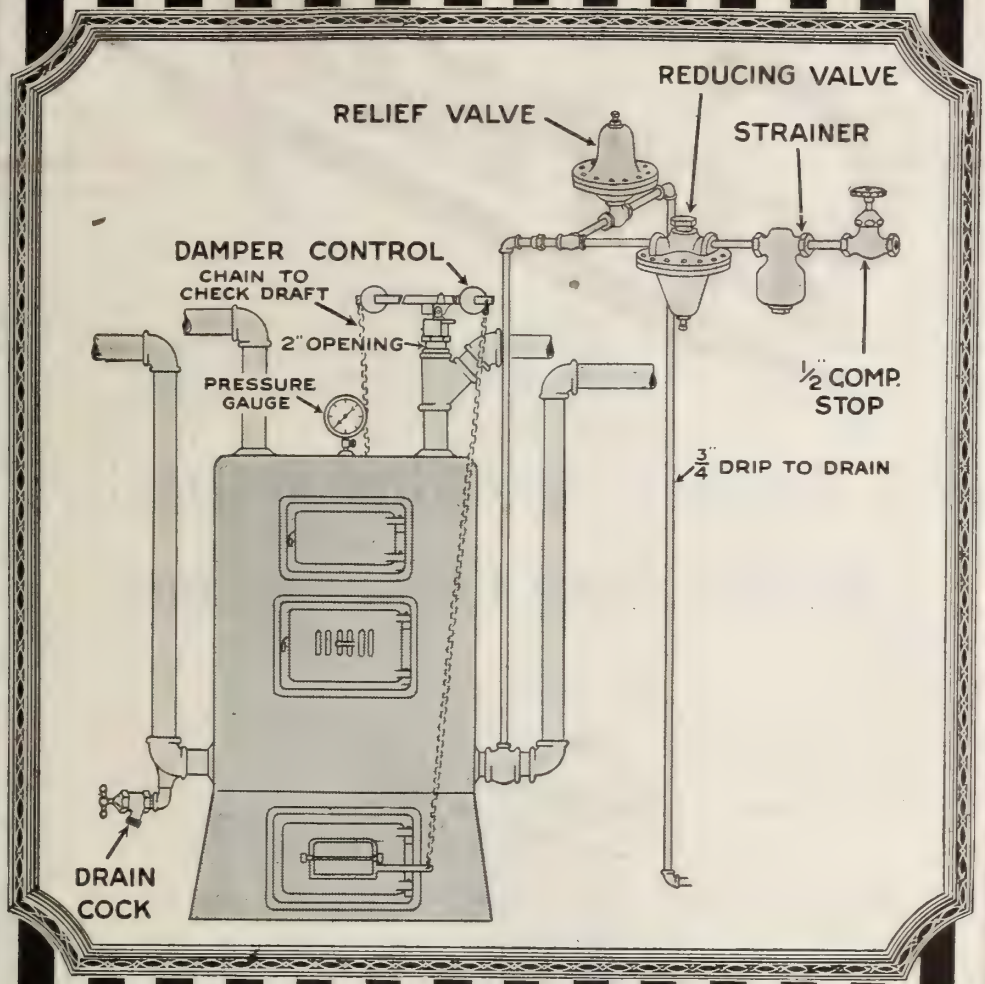

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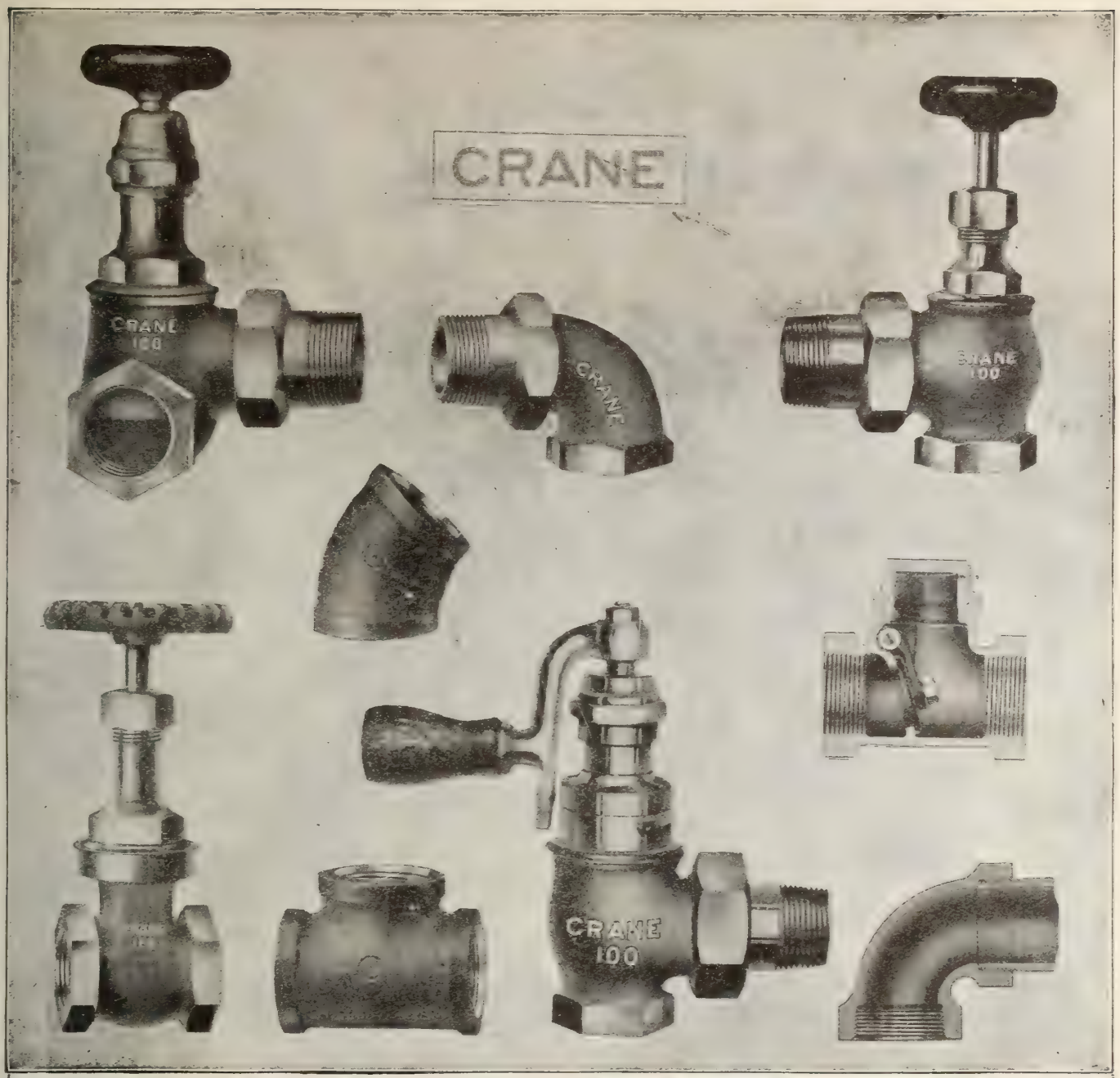

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12

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PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907 PUBLISHED TWICE MONTHLY

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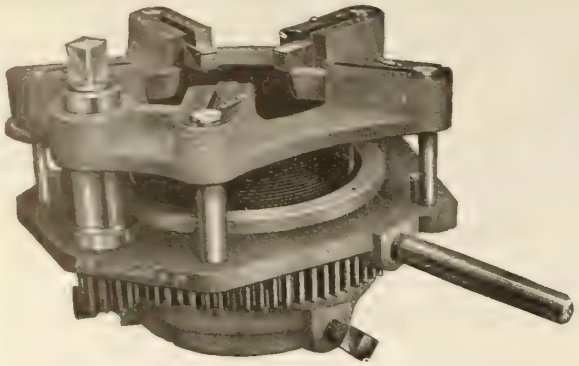

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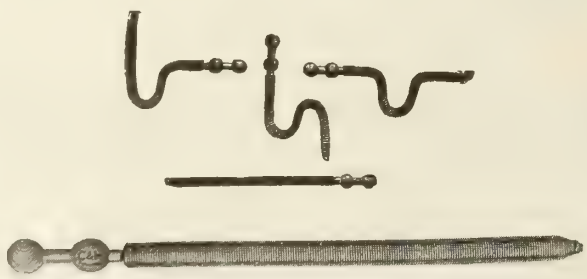

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Discuss Right to Fix Resale Prices

Anti-Combine Legislation Laid Over Pending Hearings of Various Industries as to Value or Otherwise of Allowing Manufacturers to Fix Resale Prices of Their Products—Interesting Facts Brought Out in Discussion

By Special Representative of Sanitary Engineer

EDITOR'S NOTE: A matter of vital interest to all those engaged in the sanitary and heating business is the question of manufacturers establishing fixed resale prices at which wholesalers or the final distributor will sell. Hearings are now in progress before a special committee appointed during the spring session of the Ontario Legislature to consider the proposed new Provincial Bill which has for its object the preventing of fixed resale prices. The Bill was the outcome of the case brought by the Attorney General against a number of wholesalers and manufacturers some months ago. That case was in itself an outcome of the Board of Commerce investigation into alleged combines among distributors. At that time combines in restraint of trade were said to have been discovered and the Attorney-General through Mr. Roebuck instituted suit against certain wholesalers in Ontario and a number of manufacturers.. The judge decided the Attorney General had no right to bring such an action but made no decision as to the rights or otherwise of a manufacturer to fix resale prices.. The Bill introduced last session endeavored to give the Attorney General this right to prevent manufacturers fixing by agreement the resale price of their product. The Bill has been temporarily laid over while this investigation proceeds. No doubt the plumbing and heating supplies field will be investigated.

MR. ROEBUCK, in support of the Bill, reviewed several combine cases that had come before the court during the past twenty years. He also cited the Colgate and the Shrader cases in the United States. He claimed that the Shrader case came under the anti-combine Sherman Act of the United States and that the point in the judgment was that it was illegal to agree with a purchaser that he will not sell goods at a certain fixed price.

He then quoted from certain agreements between Canadian manufacturers and certain wholesalers. He thought that the most ironbound agreement of all was one in which the wholesaler was bound to sell at a fixed price and had to make an affidavit whenever called upon that he had lived up to the agreement in every way. There was also a second form of agreement between the same manufacturer and the wholesale trade in which the wholesaler was entitled to a rebate each six months if the price had been maintained.

"Do the railways fix their rates so that there won't be competition?" was asked by one member of the committee.

Mr. Roebuck—"The Dominion Railway Board arranges that."

Scope of the Bill

Mr. Roebuck referred to the method of the E. B. Eddy Company in selling the trade. They notify, he said, their customers of the price at which goods are to be sold to the retailer only, but there is no agreement as I understand it. The Bill as drafted would only touch resale agreements and would not, for instance, affect such an arrangement as the Eddy Company's.

"Is there any such legislation in any other province?" was asked. "No," was the answer.

E. M. Trowern—"Nor in the world?"

Mr. Roebuck—"There are in several states of the United States."

Mr. Trowern—"But not in operation."

"Could the Dominion Government enact a similar law?" he was asked.

"I don't think so," was the reply. "This is clearly a civil matter for the legislature."

Under this Bill, Mr. Roebuck stated, it would be impossible for a Montreal manufacturer, for instance, to collect a bill in Ontario if he had a re-sale agreement with the Ontario firm.

Hugh Blain—"They would send it with a Bill of Lading attached."—(Laughter).

Hon. Mr. Raney thought the big point at issue was whether the consumer and the retailer should be bound by an agreement to which they are not a party.

Mr. Ellis, of Barber Ellis, manufacturers, stated that he had been fifty years in business. Fifty years ago the business slogan was, "Business is War." To-day, however, this has been changed and the motto is, "Co-operation." He maintained that business men should co-operate more and not try to cut each other's throat. He made the point that if such a law were to come into effect in Ontario it would not affect, for instance, Manitoba, where his firm has a plant in Winnipeg. If a representative of theirs were to do anything contrary to this Act in Winnipeg a competitor of ours would come into Ontario and find us guilty of a criminal offence. He thought that was one feature that undoubtedly should be considered carefully.

Postage Stamps Could Be Cut

E. M. Trowern, secretary of Dominion Board, Retail Merchants' Association, Ottawa, made one of his characteristic fighting addresses in defence of the retail merchant and against the meddling in business affairs by men who, he claimed, knew little or nothing about them.

He asked the committee if they appreciated the number of things that the Bill, if passed, would affect. For instance, there were postage stamps. What would happen if every dealer in postage stamps were allowed to cut the price? Then there were automobiles, all of which were sold on the fixed price basis from dealer to consumer. There were sheriffs' and lawyers' fees, shoe polish, dry goods, furniture, different kinds of food products, implements, optical goods, pianos, sewing machines, typewriters, newspapers. There were also milk dealers. What would happen if the farmers were not allowed to fix the price of their milk to dealers?

Mr. Raney—"Are you in favor of the appointment of a board of some kind to regulate these prices?"

Mr. Trowern—"Yes, if the board is properly constituted and includes merchants." His suggestion was perhaps three manufacturers, three wholesalers

and three retailers. Mr. Trowern maintained that in business there were perhaps three per cent. fakirs or pirates and ninety-seven per cent. endeavoring to make a fair and honest living. Included in the former were those who cut the price of one article and "soaked" the public on others.

"Without your merchants this country would not be worth a cent," he declared emphatically.

Mr. Trowern referred to the intimation by members of the committee that the consumers should be called in in the matter of fixing rates. He asked if consumers were called in in connection with fixing prices on railway tickets, on the sale of theatre tickets. "It can't be done. It is absurd," he declared.

Hon. Mr. Drury, prime minister, asked if he was in favor of fixing the prices on all farm products.

Mr. Trowern replied that he was as far as it was possible. But there are cases where it would be impossible, for instance, if one farmer grew a better quality of apple than another, he would be entitled to a better price.

The Ford Co.'s Agreement

H. S. Pritchard, of the Ford Motor Company, read the agreement his company has with their dealers in regard to the re-sale of Ford cars and parts to the ultimate consumer. They sell outright to the dealer for cash and the dealer signs a contract preventing him from selling at a price less than the fixed re-sale figure. The agreement, he said, was air-tight and that for each violation the dealer was assessed $100.00 and the contract was also terminated. They had the same prices in every part of Canada from Halifax to Vancouver, apart from freight charges, and he believed this was the correct principle.

Apart from A. W. Roebuck, Toronto lawyer, who introduced the matter, there was no one who spoke against the principle of fixing the re-sale price. All were in favor of it.

During the last day and a half several members of the committee intimated that what they wanted to get at was a reduction in the high cost of living. It was plain, they said, that the cost of living was still mounting and that there did not appear to be any let-up. This statement was questioned by E. M. Trowern, secretary Dominion Board, Retail Merchants' Association, who claimed that cost had gone down and that living was cheaper. The big point at issue so far as the committee of the Legislature was concerned was as to whether fixing the re-sale price of an article from the wholesaler to the retailer and from the retailer to the consumer enhanced or otherwise the cost to the ultimate consumer or user.

Method of the Eddy Company

J. F. Taylor, secretary and sales manager of the E. B. Eddy Company, Hull, Quebec, explained that his company distributed their output to the legitimate wholesale trade through the retailer. "We think," he said, "that is the proper method. If someone writes to us asking the privilege of buying our goods we investigate their case fully. We write them a confidential letter asking for full information and if that letter is acknowledged they secure our goods. We send them our price list and they are to maintain those prices to the retail trade. We do not, however, say at what price the retailer shall sell to the consumer. We have always felt that if we did not give the distributor a fair margin of profit, it would only be a matter of time when he would not be interested in our line."

R. R. Hall, M.P.P., wanted to know why there was such a great spread in so many instances between the price the producer received and the price the consumer paid.

The conference adjourned until called again by the chair when representatives of several other industries and trades will be heard.

"Work Should Be Performed So Well That Plumbing Inspector Would Hardly Be Needed"

Sanitary Engineers of Hamilton and Niagara Districts Gather as Guests of Toronto Manufacturers to Inspect Production Stages of Sanitary Goods

THAT the work of the sanitary engineer should be performed so well that there would eventually be no need of plumbing inspectors, was one of the remarks of Norman Swanston, president of the Ontario Society of Domestic, Sanitary and Heating Engineers at a gathering in Toronto. The occasion was luncheon at the Palais Royale, Sunnyside, where one hundred and forty-five sanitary engineers from Hamilton and Niagara districts were the guests of the Standard Sanitary Manufacturing Co., and also the Toronto Manufacturing Co. Mr. Swanston remarked that the financial side of the sanitary engineers' work should be considered of minor importance when compared with the beneficial results accruing to the community at large through the modern influences at work in this direction and the every-day achievements of the trade. Mr. Swanston also suggested that it was a good idea to bring the sanitary engineers together more frequently, both in local and other gatherings, in order that up-to-date and new ideas may be circulated in this manner for the benefit of the industry as a whole and the plumbers in particular.

NORMAN SWANSTON

President of the Ontario Society of Domestic, Sanitary and Heating Engineers, who addressed gathering of Hamilton and Niagara district sanitary engineers.

The trip from Hamilton and the surrounding localities was made in 27 automobiles. H. S. Wallace, of the Toronto Mfg. Co., acted as chairman at the luncheon. He extended a welcome to the visitors and briefly outlined the policy of the firm he represented. He was followed by Norman Swanston.

D. Wake, plumbing inspector of the City of Hamilton, acknowledged the invitation on behalf of the Hamilton contingent. He stated that in conjunction with the suggestion propounded by Mr. Swanson, the plumbers in Hamilton and district had started a social club, some details of which organization were outlined. It was the feeling of the gathering that a similar lead could be followed by sanitary engineers in other districts.

G. W. Crawford, vice-president and general manager Standard Sanitary Manufacturing Co., Toronto, stated the principal reasons for the occasion, desiring the closer co-operation of the trade and to this end it was felt that an opportunity should be provided for the visitors to obtain a better acquaintance with the manufacturing end of sanitary products in general.

After the luncheon, therefore, the party inspected the factory of the Toronto Manufacturing Co., this tour being continued to the manufacturing plant of the Standard Sanitary Co. The return trip to Hamilton and districts was made by auto. Those taking a leading part in the proceedings in addition to the above, were: F. Rodgers, Hamilton manager of the Standard Sanitary Co.; H. L. Glendenning, local manager; Henry Rooke, sales manager, Page-Hersey Co., Toronto, and W. H. Cunningham, of Cunningham & Hill. Mr. Whitelock, building inspector of Hamilton, was also present.

The Chain Prince and The Antique Washdown

By Major L. L. Anthes, Managing Director Anthes Foundry Co., Toronto. With Apologies to George Ade and McCutcheon

ONCE there was a Swell Guy, who had picked Berries by the Bushel from off the Golden Tree. He had them laid away carefully like so many Sleeping Beauties in a Financial Mausoleum in the Big City.

The time had come when the World could say of him, "He Toils not, neither does he Spin," excepting when his big Choice-Rolls burnt skidways in the Tarvia on the way to the Country Club.

Every Quarter these reposing Sleeping Beauties yielded him a Goodly Tribute known in the Vernacular as Bond Interest.

By persistent Patronage of the Corner Emporium of Sweets during those Years he was wrestling with "The Three R's" he conceived the Idea of Cash and Carry. He aspired to a "Chain" that would encircle the Earth.

While the Callow Youth of his Generation were tipping off their elders on the Fine Art of Spending, he practised the less spectacular Art of Saving.

By humping his Back between Meals and saturating his Dome with Deep Stuff while the World slept, he arrived, heavily laden with the Goods of this World.

Now his great Desire was to own, keep and hold intestate, a Country Estate replete with Green Gables, Overhanging Balconies, Lightning Rods and all Dignified Appurtenances that distinguish the Plute from the Great Unwashed.

The Heart of a Wealthy Brewer suddenly ceased Delivery the Day the Bone Drys turned the Chariot of State into a Water Wagon. He left upon the Hands of his wet-eyed and dry-throated Executors just such a Palais Royale as our Chain Prince had visualized in his nightly Visits to the Land of Nodd.

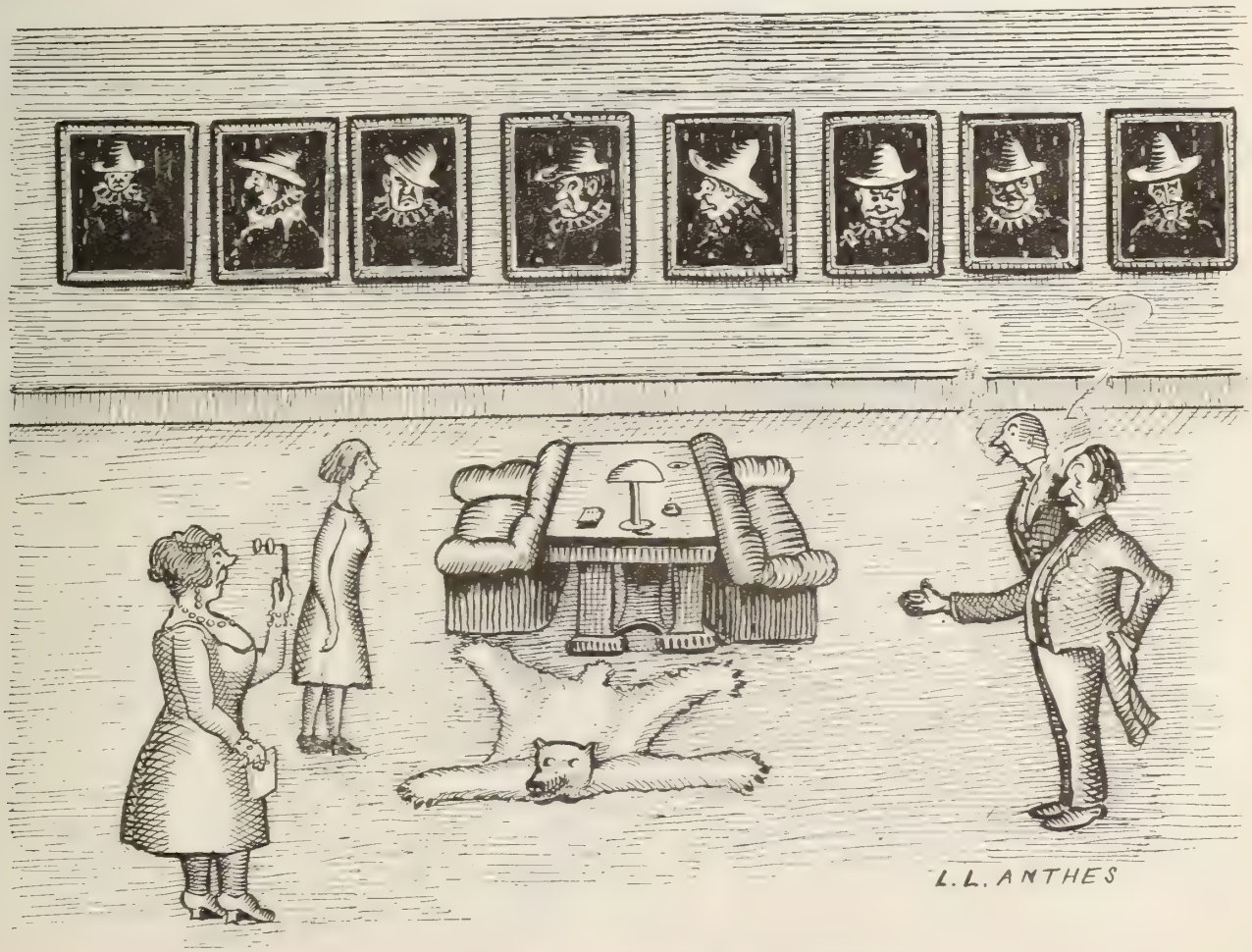
It was a Short Transaction. The Sleeping Beauties in the Financial Mausoleum were jazzed a bit while Black-coated Lawyers prevailed upon Our Hero to desist from his Favorite Pastime of signing Embossed Cheques, long enough to inscribe his Autograph on several formidable-looking Sheets of Parchment, and Presto—His Dream came True.

At last he was a Bird in a Gilded Cage. And verily it was a Gilded Cage.

The Late Lamented who built his Pile on the Juice of Hops had been no Piker when he put the Proceeds from so many million Glass Containers of Hooch into the Erection and Furnishing of his Cosy Nest over a Score of Years ago.

But our Chain Prince was for 1923 Models only and soon the Transformation Scene was on.

The Family Hopeful who specialized in Fags and Speed had Advanced In-



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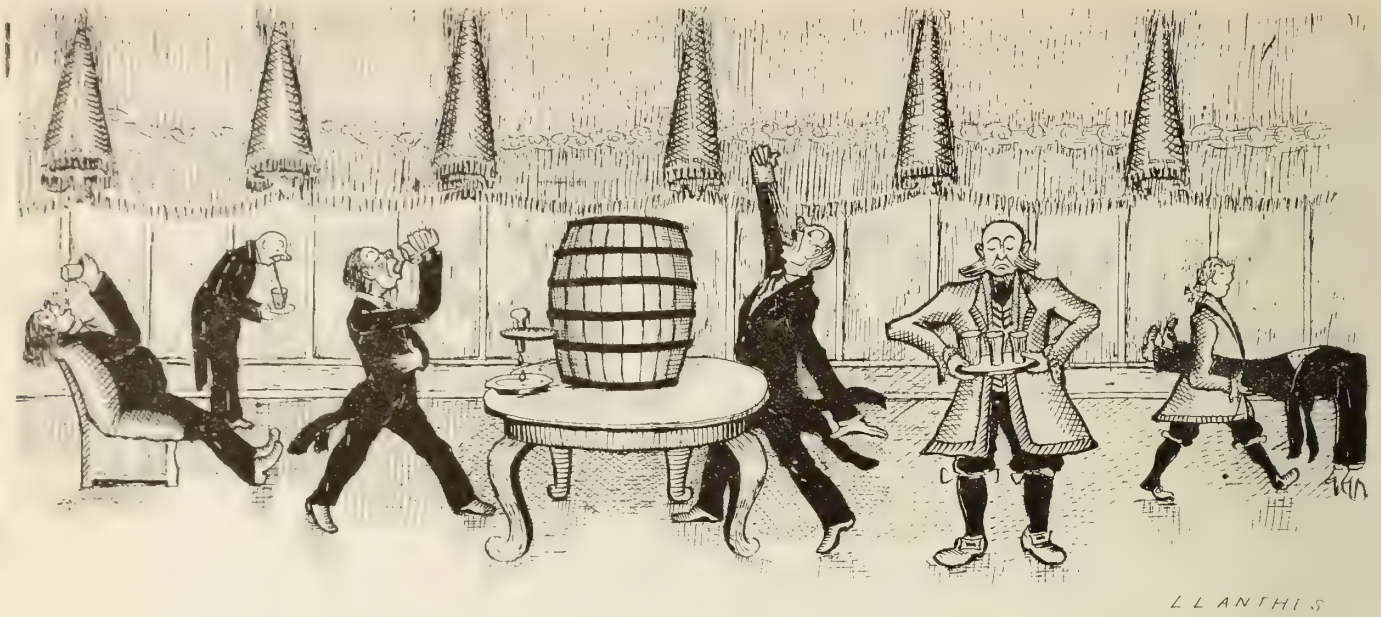


The Male Section Threw It Into Themselves

clinations towards the Razzy Contraptions.

Elephina, the Bob-haired Filly who was training to run in Double Harness with some Ruler of a Castle in Spain, was the Finished Product of the Manicurist and the most advanced Futurist Costumier. She was Nuts on Culture.

Maw had once seen the Illuminated Signs on Broadway and henceforward her Heart's Desire was to scintillate and glow like a Nitrogen Cluster. Gems from the Private Stock of Crippled Princes and Defunct Rajahs were sorted and re-sorted to bring her up to the required Candle-Power of Brilliance.

Oh, they were a family of the Rara Avis!

The Poor Brewer's Personal Effects and Chattels were given the Once-over and where the Hall Mark was Non Est the Dump was the Receiver.

Sister insisted, and the Virtuous Old Upright which had remained Upright and Virtuous all through the Wet Season, was shown the Door and a Concert Grand, the favorite Sparring Partner of Straddlewski, the Virtuoso Extraordinary, and which stood on three Polished Legs and had Real Ivory Teeth, spread itself in the Halle de Harmonie, otherwise dubbed the Chamber of Music.

Ancestors Rank No. 1 Preferred in Select Life and as the Canned Brewer had not been Over Careful in the Selection of Forebears (their Expressions ranging from Bucolic to Alcoholic as the Business had Prospered) they were Paid Off, and the Gilt Frames retained for Future Occupancy.

Fortune smiles on her Favorites.

An Artist of High Degree had just Executed a Magnificent Mural of Ali Baba and the Forty Thieves for the New Highbinders Hotel, then in a State of Suspended Animation. The Promoters (who had been Unusually Successful in the Disposal of Stock) were suddenly seized with some Mysterious Malady which necessitated their Departure for an Unmapped South American Point.

So here was a Select Group of Ancestors Made to Measure.

The Great Mural Canvas was Unrolled and Each Thief clipped off like so Many Coupons on An Oil Certificate, and Behold! New Tenants had moved into the Gilt Frames.

And now that the Ballast had been Shifted and the General Motif brought up to Advanced Twentieth Century Specifications everything was Jig for the Grand Mid-Summer Opening.

Handbills were distributed among the Demi-Tasse Aristocracy for the Unrivalled Three Ring Circus.

At last came The Day.

The Family were Paraded for Inspection and Paw gave them the Once Over. Each had a Full Complement of Standard Equipment and all the Accessories of a Racy New Model.

Maw carried off the Blue Ribbon. Her Gewgaws spit Flame like a Pyrotechnic Fountain.

They were all to the Mustard and ready for the Visiting Delegates.

The Last Mentioned arrived in Assorted Lots, and soon the Landscape rang with Harsh Laughter.

Paw had unearthed a Hidden Keg which the Late Brewer had been unable to take with him, and the Male Section started a Spirited Contest by throwing it into themselves like the Star Performers at an Old Time Iron Moulders' Picnic.

There was Music in the Salon, Elephina being the Headliner, supported by a Troupe of Long-haired Jazz Butchers from the Metropolis.

It was an Inspiration to hear Daughter Cut Loose. Signor Muskalunge, her Trainer, had predicted that had it not been for her Catarrh she would be Biting Holes in Grand Opera with the Best of Them. As it was she was Colossal. She chewed up Sonatas, Arias and Concertos like so much Cold Slaw. When she was finishing the Mad Scene from Lucia she Split her Larnyx.

Altogether the Affair was a Howling Success.

One of the Star Delegates was an Architect by the Name of Swift, who had Grabbed off Half the Alphabet and stuck it After his Name, presumably to prevent the Name getting away from him. His Father, a Generation gone by, Projected the Brewer's Abode and Paw Trotted him Around the Dugout to let him see what a Great Man his Father had Been.

They had just completed a Tour of the Rogues Gallery, otherwise known as the Salon, and were now headed towards the Plumbing Department.

A Noise as of Escaping Steam greeted their Ears as a Proud Matron opened the Bathroom Door and slunk past them like a Premiere Danseuse with Fallen Arches being hissed off the Stage.

"Most Plebeian," remarked the Architect, referring to the Raucous Archaic Wash-down.

"Oui, Oui," answered the Chain Prince, thinking the Man of Front Elevations and Ground Plans was Shooting some Snappy French Phrase at him.

The Continued Hissing of the Interior Economy of the Seat of the Mighty created a Sense of Embarrassment in the Chain Prince and a look of disapproval on the Ultra-Aesthetic features of the Projector of Monumental Piles.

There was a Rift in the Lute—a Jarring Note—A Fly in the Ointment—The Chain Prince could Sense it if he could not see it. He knew his Guest to be a Man of Discernment, a Connoisseur, an Epicure, a Lover of Antiques—but why the Sudden Change of Expression, the Look of Utter Disapproval upon entering this Realm of Naked Truth—surely the Bathroom and its Fixtures were Antique enough to Satisfy the Most Exacting of Antiquarians!

"Ahem-m-m," remarked the Chain Prince to break the Impasse.

The Architect continued to Scowl with Folded Arms and Knitted Brows like Napoleon before Waterloo.

"Ah-h-h, anything wrong?" haltingly inquired the Prince.

"What was the Date of the Flood?" snapped the Geometrical One.

The Prince felt uneasily behind for the "Exit"—here was evidently a Good Man going wrong.

"Wh-h-at flood?"

"Noah's Flood!"

"Why?"

The Architect, Galvanized into Life, and with a Sweeping Gesture that seemed to embrace Each and Every Article of Furniture, Useful and Otherwise in the Modest Room, almost shouted—"Antediluvian, Antediluvian,—Antediluvian!"

"Oui, oui," answered the Chain Prince, not to be Pheazed by Foreign Allusions, and thinking of the Old Poem "Excelsior."

"Let us away," uttered the Man of Letters, wheeling on his Rubber Cushion Heel. "I'll send you a Plumber."

The Poor Chain Prince lost his Equipoise entirely—he was Completely Floored. Even after the Last Delegate had Long Departed he was still in a Trance.

The Chain Prince had Scarcely Finished the Ceremony of Disembowelling a Fourteen Karat Grapefruit at Ten O'clock Breakfast the Morning After, when the Dignitary in Plush Garments who gives the necessary Swank to the Best Families, presented him with a modest bit of Pasteboard.

Inscribed upon it was the Legend—

"Pat Kelley,"

"Sanitary Engineer."

The Chain Prince from Earliest Childhood had possessed the Deepest Respect for an Engineer. Indeed it had once been his Ambition while still in the Nurse's Care to Manhandle the Throttle of a Compound Mogul. The Fact that this particular Engineer heralded himself as "Sanitary" was also in his Favor, as the Chain Prince himself was a Consistent Disciple of Personal Hygiene.

But a Large Awakening was due the Chain Prince. After a few Verbal Passes with the One named "Pat," it Percolated through his Bean that "Sanitary Engineer," and "Plumber," were more or less Synonomous.

Now he would be Put Wise to the Patter Monologue which the Architect had Pulled Off in the Family Wash Room the Day before.

Thither was led the Willing Knight of the Melting Pot. The Wash-down was still whistling through its Teeth after the morning's Efforts.

"Some Bowl," remarked Kelly.

"I play Golf," answered the Prince with Dignity and the Emphasis on "I."

But the Doctor of Sick Plumbing was referring to the highly Ornamental Closet Bowl which was Floridly Decorated with a Cupid's Garden Effect. He explained to the Prince that Closet Bowls should be of Chaste and Simple Design, and that the Day had passed when that Useful Receptacle was made to resemble a cluster of American Beauties.

"What you want is a Low-Down Combination," advised Kelley.

"Nothing of the Sort," responded the Prince who associated Low Down Combinations with Low Life and Plebeian Tastes.

Then the Oakum King explained that a Low-Down was not as Low-Down as it sounded.

"I refuse to sit on the Floor for Anybody—as for my Family—" began the Prince; but Kelley forestalled him and soon had the Prince convinced that Low-Down applied to the Tank and not to the Seat.

Then turning to the Lavatory, Kelley exclaimed, "Ah, you want a Pedestal there."

Now the Chain Prince thought a Pedestal meant a War Memorial and Kelley had again to put him Hep.

"New Bibbs all around," mused Kelley.

"Pardon me, this is not the Nursery," growled the Prince, who felt that the Wiper of Lead was trying to Take a Rise out of him, "and besides my Family has reached Years of Discretion."

The Wood-enclosed Tinned Copper Bath which looked for all the World like a Degenerate Clothes Boiler caused Kelley to wag his Nut sadly. He made no comment.

They then proceeded to the Kitchen.

"Sink with Apron and New Bibbs needed here," remarked Kelley tersely.

The Chain Prince had been trying to Follow Kelley's Technical Appellations, but the idea of an Apron on the Sink was too many for him. He threw up the Sponge.

"See the Architect; tell him I capitulate—I am in his hands and yours," he said, and fled the premises.

After a visit to the Perspiring Basement, Kelley jumped into his Lizzie and made for the Architect's. Between them they Organized a Plan of Campaign and the Chain Prince was forwarded a Map of the Operations.

The Upheaval would be Tremendous but the Prince was Game. He blindly O. K'd the Manoeuvres and Let them Go to It.

And they Did.

They projected Bathrooms lavishly, and the Lawn of the Majestic Mansion took on the Appearance of the Back Yard of a Supply House at Stock-Taking Time.

After the Army of Occupation had retired in Orderly Sorties, what a Change was There! The whole Family were pushing Porcelain Indexes and taking Daily Tubs with the Delight of So Many Children with New Toys.

The Prince could once again look the World in the Face—for the new Fixtures would not Embarrass him by Hissing his Guests.

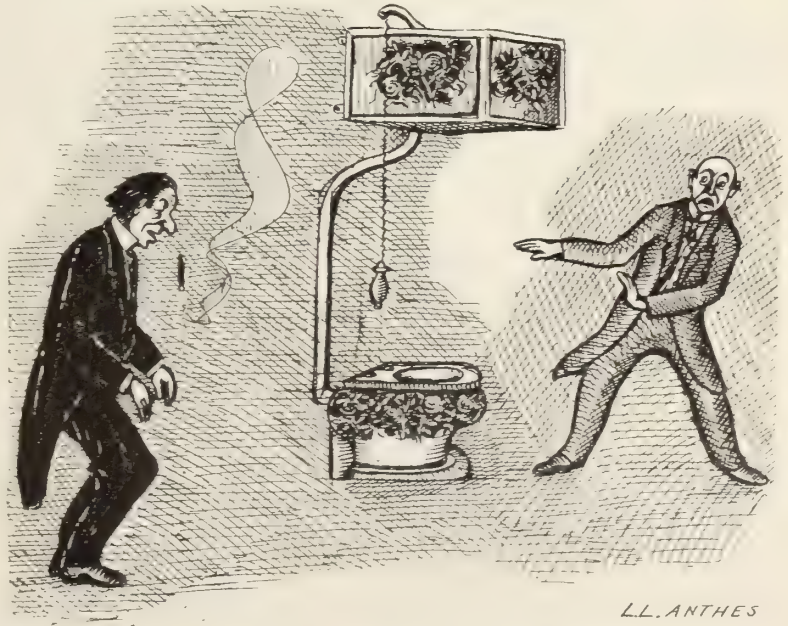
The Art of Plumbing had received such a Boost in the mind of the Chain King that he unconsciously raised his Lid each time he rolled past Kelley's Showroom in his big Choice-Rolls.

Moral:—

A chaste Bathroom is more to be Desired than Great Riches—the Seats of the Mighty Rock Without Post Hinges.

STANDARD SANITARY CO. CLOSE TORONTO JOBBING BRANCH

The Standard Sanitary Manufacturing Co., Ltd., announce that the jobbing branch of their business in Toronto will be closed shortly and the premises, 59 Richmond street east, placed on the market. Efforts are being made by the firm to find other positions for their employees who will be out of work as a result of the closing down of the plant.



"Antediluvian—Antediluvian—Antediluvian."

Rural Sewage Disposal Systems

Fixed Measurements in Installing Syphon in Septic Tank—Syphons Failing to Discharge—Not Properly Primed—Insufficient Field Tile—Location and Proper Size of Septic Tank

Written for Sanitary Engineer by EDWIN NEWSOME, Consulting Sanitary and Heating Engineer

THE LAST paragraph in the article under the above heading, appearing in the Oct. 15th issue, pointed out that there are certain fixed measurements in connection with the proper installation of a syphon in a septic tank, or as a matter of fact, in any tank used for other purposes where a syphon is used.

This condition is due to the fact that when the sewage has risen to a pre-determined height, the air in the syphon has become compressed which will ensure for all time, the positive automatic action of the syphon.

Sometimes Syphons Fail to Discharge

Sometimes, though happily very rarely, is it found that such a type of syphon fails to operate. Never, however, without a clear definite reason. And it must be admitted that a syphon can fail to flush if certain conditions arise.

For example, if the syphon is not properly primed as described in a previous chapter. Next, the bell has been removed, or disturbed when the dosing chamber has been partially filled with sewage or the small trap at the side of the well has become either wholly or partially choked up. Another very simple reason too, which is very often overlooked, that of having the overflow from the cultivating chamber too close to the bell of the syphon. Figure 6 shows what takes place. Here is a condition which must be avoided. When the syphon has discharged, the sewage is at a low level. The sewage overflowing strikes a location so near to the edge of the bell that some air bubbles caused by the falling sewage enter the bell of the syphon, and as these air bubbles are released, they require to be compressed, which means that the sewage has to rise to a higher point in the dosing chamber and, as the various pipes are in fixed locations, the sewage very often is found to overflow and thus the operation of the syphon is prevented.

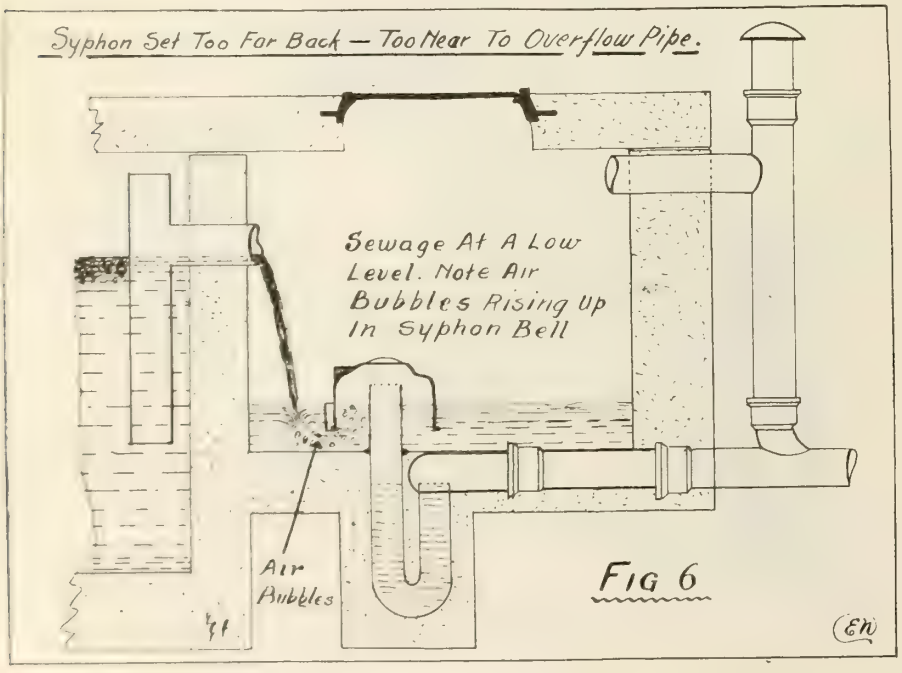
It will, therefore, be seen that the syphon should be located as far away from the overflow pipe as possible. To simplify this article we will call the fittings used in the septic tank figures 1, 2, 3, and 4, as reference to them will be necessary from time to time.

Syphon Not Properly Primed

When a syphon is not properly primed, it means that the two legs of the syphon are not filled to such a height as will ensure that the short leg is full to overflowing point. It may be asked, how can this condition be prevented? Simply by pouring water into the long leg very slowly, using about 3 gallons of water in so doing. Next, the small trap at the side of the bell is liable to get dirt, small stones or sand in it, while laying about a building, or during shipping, and if it does become so partially choked, there is not sufficient air passage into the syphon, and the sewage will then be syphoned to too low a level, then, when the sewage reaches the lower level, syphonic action is broken by air passing under the bell.

After such an operation has taken place, the sewage will rise too high and the syphon then fails to discharge.

The writer called on a job not very long ago where a syphon was not operating properly. The bell had been lifted off several times and the sewage was standing up to within two inches of the top of the long leg. The bell was placed on the syphon and water discharged into the tank. And of course the syphon did not work. But as soon as all the sewage was taken out of the dosing chamber, and the bell replaced, the chamber filled again, the syphon operated in the ordinary manner.


Syphon Set Too Far Back — Too Near To Overflow Pipe.
Sewage At A Low Level. Note Air Bubbles Rising Up In Syphon Bell
Air Bubbles
FIG 6

Still Another Trouble

Much has been said about the importance of having all the pipes of a disposal bed, laid level. The pipes so referred to are the open jointed ones. In laying the trench line pipes level, it has been found that some sewage remained in the trench line, and therefore the level of sewage is a little too high and the air space in the syphon reduced somewhat. It will be seen that the connections at the septic tank should be laid slightly higher so that there will be a little fall provided say at the first length of drain tile pipe used. This pipe should be about five feet from the septic tank, as all the piping in and near the septic tank should be of cast iron soil pipe. This latter precaution is necessary, to ensure that no sewage will leak into the ground too near the house.

Not Sufficient Field Tile

There is still another condition which will prevent the syphon from operating and one that is very common, that of failing to provide enough open jointed field tile pipe for the absorption bed with the following results: The syphon we will say, by way of a simple illustration is to discharge from the dosing chamber, 200 gallons of sewage.

Then it follows that this sewage must have free access to some other location or receptacles, and, where 200 gallons is to be discharged, 400 lineal feet of four in. field tile pipe would be necessary. One lineal foot of 4-inch pipe is equal to one half gallon. Suppose then that only 300 feet of pipe were provided. 25 per cent. of the effluent in the dosing chamber would remain in the tank and the condition of the syphon would be "full of sewage" along with

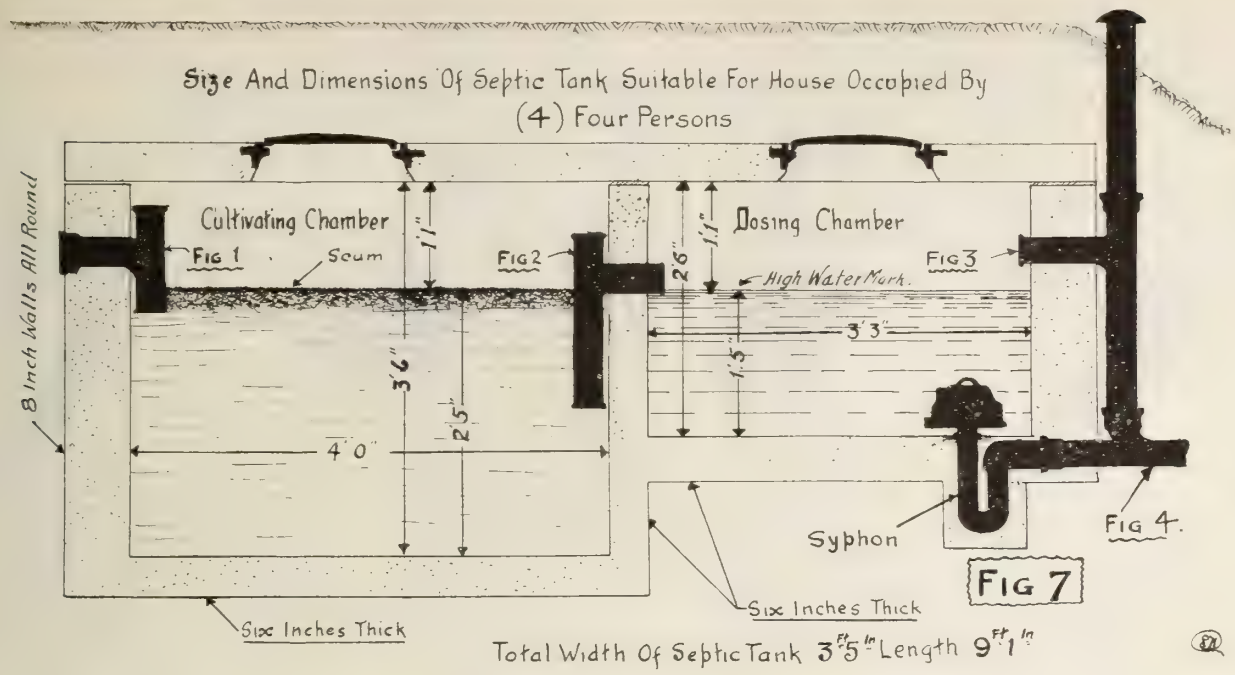


FIG 7

all the field tile. Then the sewage from the house would flow from the first chamber into the dosing chamber and maintain an unnatural level, keeping the whole of the piping as well as syphon full of sewage.

It is therefore very essential that a sufficiently large number of field tile be provided, which is not less than two feet to every gallon of fluid discharged into them from the dosing chamber.

Actual Fixed Measurements

In Figure 7 actual measurements are given, some of which are fixed, and while this particular illustration gives the size of a complete septic tank suitable for a house occupied by four (4) persons, it is not drawn to scale, but as the various dimensions are shown in the dosing chamber relative to the position of the syphon, this phase of the subject will be dealt with first.

It will be noted that the sewage in dosing chamber is up to the high water mark, that the depth of sewage is given at 1 foot, 5 inches. This has often been mistaken as meaning 15 inches, which is not so. Then again the total depth of sewage is shown as being one foot five inches. Which means that the depth of sewage at high level is 17 inches from the bottom of the tank. Only one foot two inches of the sewage is discharged at one operation, leaving three inches in the bottom of the dosing chamber after each flush.

Therefore, when calculating the size of a septic tank, the basis of such sizes must be the quantity of sewage discharged at each operation of the syphon.

Location of Septic Tank

The location of a septic tank is very important for many reasons. The relative position of a well or other source of water, the lay of the land, and the contour of the ground, also the position of the soil pipe or house drain as it leaves the house. It is however, advisable whenever possible to build the septic tank near to the house or building. First, because if built at any distance from the building, a long run of drain pipe is necessary, and in winter it is bound to get cold, and, when the sewage flows through it from the building the cold pipe chills the sewage and apart from the fact that cold sewage interferes with the proper breaking down of the solids, the walls in the interior of the pipe become coated with ice or other frozen matter and there is every likelihood of the pipe becoming choked.

Then there is another reason. The anaerobic bacteria, the germ which comes to life and thrives in the first chamber, gives off a gas, CO^2. This gas is like the exhaled air from a human being, and must be carried away from the septic tank. When too long a run of drain pipe is laid on at the great distance between the septic tank and the house or building, and the pipe being cold, proper ventilation of the septic tank is made impossible, and such a condition kills the friendly anaerobic bacteria thus breaking down the whole purpose of the septic tank before it has properly got to work. There is also a danger of the pipe being so long becoming sagged, causing a drop in the line which would retard the flow of sewage.

Proper Size of Septic Tanks

There are so many details to take into consideration when determining the size of a septic tank, that for the present only casual mention will be made regarding sizes required. One very important thing to remember is that it is NOT the number of plumbing fixtures, or the size of a house that bears any relation to the size of a septic tank.

For a residence, the size of a septic tank is determined by the number of persons that are expected to occupy the house. The type of water system or source of supply, the nature of the ground and whether the house is to be occupied all the year round.

Hospitals and Sanitariums

In the case of hospitals, the kind of ailments to be treated, whether or not provisions are made to collect all washes charged with antiseptic fluid, the minimum and maximum number of patients to be cared for, as well as the number of regular resident staff, and the source of water supply as well as nature of the ground.

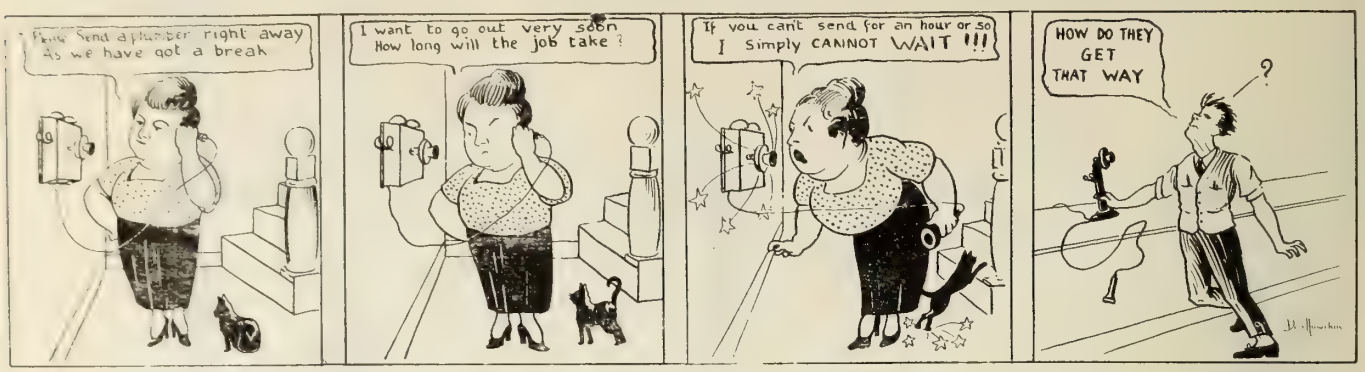
Factories, Workshops or Office Buildings

When a septic tank and sewage disposal system is being designed for any of the buildings noted under the above heading, the following details have to be given consideration. For factories, the nature of the manufacture, nature of waste, is hot water used, number of persons employed, number of working hours. How many shifts, and the number of employees working on an average during a 24-hour period. The source of water supply and the area of ground available. The same would apply to workshops. While for office buildings some difference will be found as to the particulars required. For example the employees in an office building will use the washbasins very often, the other fixtures less frequently. Source of water and type of water system requires some consideration as well as the nature of the soil.

Schools, Private, Public, and Combined High, Technical and Public

It is estimated that the rural school problem and the question of furnishing same is causing considerable interest and attention these days. More in fact than ever in the history of this continent. Architects, engineers, as well as general contractors are specializing

"How Do They Get That Way!"— *Suggested by K. B. Allison.*


Please Send a plumber right away As we have got a break
I want to go out very soon How long will the job take ?
If you can't send for an hour or so I Simply CANNOT WAIT !!!
HOW DO THEY GET THAT WAY ?

on such work. This being the case, sanitary engineers must consider the requirements that go to make up a complete sanitary sewage disposal system.

A public school in a rural district is very often built in unit form, making provisions for future expansion, and under such conditions not only the size of the septic tank, but the location as well as the plan of the disposal bed has to be given attention and where the plumbing fixtures are located in a basement, a different design of tank than is used when a syphon is installed to flush the effluent from a dosing chamber. The source of water supply, the number of attendants and the relative number of male and female. It is also very desirable to know whether flush tanks are to used on W Cs or some kind of flush valve. These (both) have to set to flush a given amount of water per operation. The number of urinals, and whether automatic flushing devices are to be used or not.

All these details are necessary before septic tanks and sewage disposal systems for any of the above schools can be properly or successfully designed. The why and wherefore will be described in future chapters.

(To be continued in next issue.)..

THE PASSING OF THE BACKHOUSE

The Editor, Sanitary Engineer,

I cannot allow the campaign which is being waged against so time-honored an institution as the outside closet to pass without a protest, however ineffectual that protest may be. Far more powerful, however, in their effect than any words of mine will be those of James Whitcomb Riley, copy of which I enclose. Yours truly,

OLD TIMER.

THE PASSING OF THE BACKHOUSE.

By James Whitcomb Riley

When memory keeps me company and moves to smiles or tears,
A weather-beaten object looms through the mist of years.
Behind the house and barn it stood, a half mile or more,
And hurrying feet a path had made, straight to its swinging door.
Its architecture was a type of simple classic art,
But in the tragedy of life it played a leading part;
And oft the passing traveler drove slow, [illegible] sigh
To see the modest hired girl slip out with glances shy.

We had our posey garden that the women [illegible] well;
I loved it too, but better still I loved the stronger smell
That filled the evening breezes so full of [illegible] cheer,
And told the night-o'ertaken tramp that human life was near.
On lazy August afternoons, it made a little [illegible]
Delightful, where my grandsire sat and whiled away an hour.

For there the summer morning its very cares entwined,
And berry bushes reddened in the streaming soil behind.

All day fat spiders spun their webs to catch the buzzing flies,
That flitted to and from the house, where Ma was baking pies.
And once a swarm of hornets bold, had built a palace there,
And stung my unsuspecting aunt—I must not tell you where;
Then father took a flaming pole—that was a happy day
He nearly burned the building up, but the hornets left to stay.
When summer bloom began to fade and winter to carouse,
We banked the little building with a heap of hemlock boughs.

But when the crust was on the snow and the sullen skies were gray,
In sooth the building was no place where one could wish to stay.
We did our duties promptly, there one purpose swayed the mind;
We tarried not, nor lingered long on what we left behind.
The torture of that icy seat could make a Spartan sob,
For needs must scrape the gooseflesh with a lacerating cob
That from a frost encrusted nail, was suspended by a string.
My father was a frugal man and wasted not a thing.

When grandpa had to "go out back" and make his morning call,
We'd bundle up the dear old man with a muffler and shawl.
I knew the hole on which he sat—'twas padded all around,
And once I dared to sit there—'twas all too wide, I found;
My loins were all too little and I jackknifed there to stay;
They had to come and get me out, or I'd a passed away.
Then father said ambition was a thing that boys should shun,
And I must use the children's hole 'till childhood days were done.

But still I marvel at the craft that cut those holes so true;
The baby hole, and the slender hole that fitted sister Sue.
That dear old country landmark; I've tramped around a bit,
And in the lap of luxury my lot has been to sit;
But ere I die I'll eat the fruit of trees I robbed of yore,
Then seek the shanty where my name is carved upon the door.
I ween the old familiar smell will soothe my faded soul;
I'm now a man, but none the less I'll try the children's hole.

CENTRAL HEATING PLANT FOR VANCOUVER CITY

Vancouver.—Three applicants, Consumers' Central Heating Co. of Tacoma, Adkinson & Dill of Vancouver, and the Vancouver Steam Manufacturing Co. of Vancouver, are bidding for the contract to construct a central heating plant for this city. While the contract has not yet been let, it is stated by the City Council that the successful applicant must undertake to spend in the purchase of the site and plant within one year, the sum of $25,000, must also put up cash security of $10,000 and guarantee the city against claims for damages of any kind by putting up a further bond of $25,000. The company must also, within one year, have a mile of pipe in operation and within thirty months, two miles. The agreement will further include the clause that "reasonable rates" must obtain, the council reserving the right to prescribe by by-law, the rates it considers "just, fair and reasonable."

INCORPORATION

W. J. Carmichael, Plumbing and Heating Ltd., has been incorporated at Edmonton, Alta.

Ideas On Tinshop Working Methods

Written for Sanitary Engineer by O. W. KOTHE, Principal St. Louis Technical Institute and Instructor in the David Rankin, Jr., School of Mechanical Trades, St. Louis, Missouri.

SHOP working methods are always of interest. Each tradesman feels that his shop and working methods are the best. This is but natural as he is best acquainted with his stock.

Still an infusion of ideas is never harmful, especially as a person always has the power to select that what he feels is of service to him.

In sketch No. 1 we have a railroad iron with a groove in it. A railroad iron is one of the most serviceable stakes to be had.

By having a groove worked in 3/32 in. to an ⅛ in. deep and about 7/16 in. to ⅜ in. wide, the workman is saved considerable time.

The seam is hammered down and grooved at the same time, and makes the outside of pipe smooth as shown in sketch.

Wood mallets are always a source of trouble and it is quite a job to always keep them in trim.

A fellow workman has overcome this by preparing a mallet as in sketch No. 4.

The one end is flat, and the other end is oval. These faces are covered with No. 20 black iron.

Indications point that after a year's service it is still as good as the day it was put on.

Some shops make up stock as roof jacks, etc. In No. 2 we have a sketch of roof jack.

The matter of double seaming the taper to the flanges causes considerable tact.

A piece of cast iron water pipe was selected having the coupling on as in sketch No. 3, and with the hack-saw the pipe was cut off to suit the angle of roof.

This is filed smooth, and then the taper and flange are laid over. The taper can be made into a snug fit along the cut.

So, all that is needed is to hammer over the seam and solder it well on the surface side.

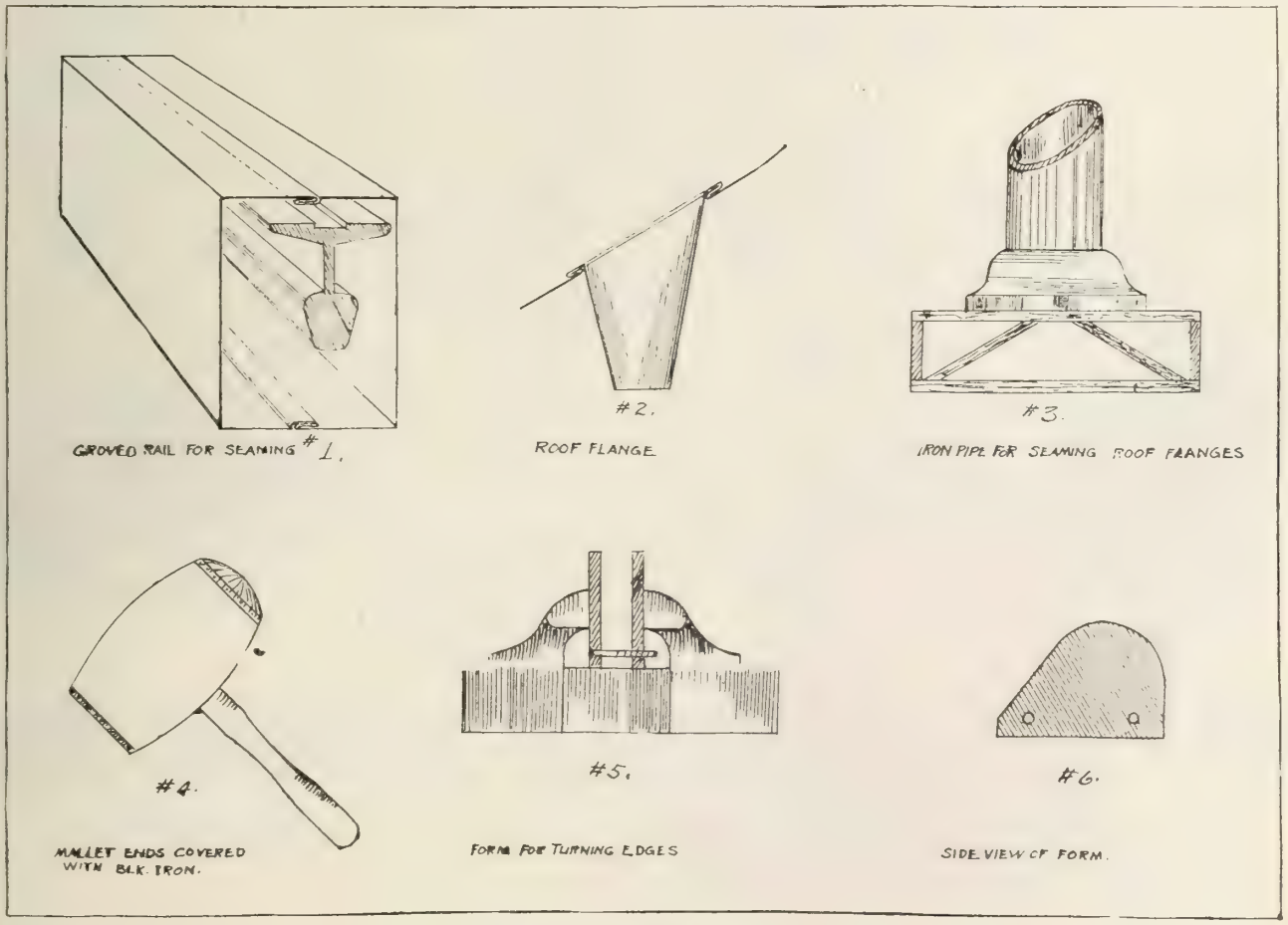
On special jobs as duct buckets, etc., it is farther difficult to turn the edges.

A form is made as in sketch No. 6 and fitted in a vise as at No. 5.

The metal is clamped between the forms and is then laid over. Things of this kind can be multiplied in every piece of work, the only thing necessary is to think them out.

DECREASE IN PRIVY PITS

Ottawa, Ont.—So materially has the number of privy vaults in the city decreased, that the revenue derived from the cleaning of these is less than fifty per cent. of the cost. This was the report made to the board of health. There are 145 of these closets in the city and not all of these produce revenue. The contractor charges $1,300. If the Board of Control decides that these privy vaults are to pay for themselves, it will be necessary to raise the charge for cleaning from $5 to $10.



Working Sketches.

At the End o

Port Hope

Vancouver Office:
325 HOWE ST.

Fact
PORT HO

the Rainbow

The pot of gold at the rainbow's end is a pretty fable to be told to children.

But we in the plumbing trade, every one of us, know that each man is, himself, the pot of gold—that he, himself, is the end of the rainbow.

More business, better business, greater profits—wealth. These things come directly in proportion to the intelligent effort a man puts into his business.

Cities and country districts alike are, to-day, literally teeming with sales possibilities for the sanitary engineer: in no other commercial field is there even a fraction of such opportunities.

The sanitary engineer who goes out and digs for this business—who sells the idea of better bathrooms and better health is improving the living standard of his fellow citizens, creating employment for his help and making generous profits for himself.

We can help you with sales plans and literature.

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Metering The Water Supply

A PAMPHLET issued by the Civic Press, New York, contains a list of almost a thousand United States and Canadian cities where water meters have been installed in whole or in part, and at a recent convention of the New England Waterworks Association considerable discussion took place on the question of metering of water furnished by municipalities to householders. An examination of the list above referred to reveals the striking fact that in almost 500 of the 1,000 cities mentioned metering has been adopted to 100 per cent. Of the remaining 500 cities, metering has been adopted on an average of about 60 per cent. As regards Canada 41 cities and towns are quoted as being metred in whole or in part. Winnipeg, Moose Jaw, Sask., Preston, Ont., and East Kildonan, Man., are mentioned as being metered 100 per cent. The metering idea does not seem to have taken as strong a hold in Canada as in the United States as only some 41 cities and towns have meters installed, and a computation of the installations of these 41 places shows only an average of 23 per cent. of metering. Ottawa with 25,000 services has only some 900 meters installed, or less than 3 per cent., and these are entirely in laundries, warehouses, hotels, livery stables, apartment houses, and similar places where a large use of water occurs, or where waste takes place. Ottawa has so far never officially considered the general metering of houses for in the Ottawa river from which that city draws its water supply, millions of tons of water more than it can possibly use flow past it daily. It is quite possible that in the not too distant future this question of metering water service may become a vital one.

Standardizing Plumbing Practice

JUST NOW there is a renewed interest in the subject of plumbing. Several cities are considering revisions of their codes. The shortage of dwelling houses in the U. S. led Secretary Hoover to appoint a building code committee to study the present legal requirements with a view to simplifying construction and reducing costs of small dwellings as far as this can be done with safety. A tentative report of this committee has been made, but not yet published. As the plumbing code presented peculiar problems a special subcommittee on plumbing was appointed by Secretary Hoover. Under its direction experimental work has been carried on for several months by the Bureau of Standards, and as a result there should be a better understanding of plumbing requirements.

It will soon be possible to get up a model set of regulations which can be safely followed for buildings of a given size throughout the country, making some necessary variations for climatic and certain local conditions. It is possible to have simple plumbing layouts in dwellings of one or two stories, but plumbing installations should be so designed as to give a reasonable factor of safety against the escape of drain air, and so constructed that the inaccessible parts of the drainage system will be as permanent as the rest of the building.

In buildings of three or more stories the hydraulic and pneumatic conditions are such as to require more elaborate systems of piping in order to secure reasonable protection. Although the air from sewers seldom, if ever, causes specific disease, it is insanitary and indecent to allow it to escape into rooms occupied by human beings. If we want simple plumbing we must build simple buildings.

Plumbing By-Laws Modern

IT IS VERY encouraging to find that a number of small towns are taking greater interest in the installation of plumbing. The latest to come to our attention is the town of Weston, Ontario, a suburb of the City of Toronto. The by-law which is reprinted in the last issue of Sanitary Engineer contains some very radical clauses. The use of clay tile drains inside the walls of buildings is prohibited. The main house trap, too, is eliminated, and the venting of the W. C. bend is not necessary when the W.C. is the highest fixture in a single bathroom house, or where no higher fixtures are situated.

The roof terminal, too, has been given some attention. We find that no soil pipe is required to project up through the roof. Wherever possible, the soil pipe must terminate through the main roof of the building rather than through a deck roof, the latter often requiring long lengths of soil pipe so that sewer air cannot enter an adjutant door or window. This roof fitting has been adopted in many towns and cities in the West where hoar frost closures were a source of trouble, and it has proved to be a very desirable roof terminal so that taking the Weston plumbing by-law as a whole, we believe it is a step in the right direction and much in advance of even the plumbing by-laws of some of our larger Canadian cities.

Gas Or Electricity

FROM TIME to time an opinion is expressed that electricity will take the place of gas, and that gas is becoming a "back number."

This opinion is not being borne out by facts. In the United States, there is an increased per capita consumption of gas to the extent of two hundred per cent. over the amount used in the year 1911.

In other words the per capita increase for the 10 years period 1901 to 1911 was 30 per cent., and from 1911 to 1921, 80 per cent. of an increase per capita. These figures almost bear the same relationship to the situation in Canada.

Several concerns have established large plants to manufacture gas consuming appliances. Gas water heaters, cook stoves and all manner of gas appliances and the outlook for selling gas water heaters, instantaneous as well as storage systems, is very bright.

Use Up-To-Date Mailing Lists

EMPHASIS should be placed on the necessity of using only mailing lists that are up-to-date. Mailing lists should be gone over from time to time, once a year is not too often, to eliminate the dead names and to add the names of new prospects.

Such a scrutinizing would effect a considerable saving in money, time and labor, and render the success of a mailing campaign more certain. Plumbers should watch carefully the returns from any such campaign and make changes accordingly.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

MUST HAVE INSIDE TOILETS

St. Catharines, Ont.—The Board of Health at its meeting decided to request the City Council to amend the building by-law with regard to the regulations on private dwellings. The Board desires the Council to provide that a building erected on a street where there is a sewer service shall contain inside toilets. The attention of the Board was brought to the fact that new buildings are being constructed where no provision is made for a bathroom, and this the Board desires to have prohibited.

CRANE LIMITED MOVE TO NEW MONTREAL OFFICES

Montreal.—Crane Limited have moved their general offices from St. Patrick St. to their new office building, 386 Beaver Hall Square. These new premises have been under construction during the spring and summer months and both building and equipment have been planned in a most modern way. Downtown stores have also been opened at 291 Union Street. The old offices at the factory are now being utilized for increased factory and warehouse space.

MUST HAVE SEPARATE SANITARY CONVENIENCES

Brantford, Ont.—At the Board of Health meeting it was decided to take definite action in regard to enforcing residents of the city to instal sanitary conveniences and, in the case of an apartment house, sanitary conveniences for each family. Some time ago the City Council passed a by-law compelling builders to connect pipes with the sewers on streets where sewers have been installed, at the time of the construction of the house, and this further action means that each family must have private sanitary conveniences.

The action was taken on the grounds that the protection of the public health demands that sanitary conveniences should be at the disposal of every family and that the essential difference between a tenement house and an apartment house is that one is unprovided with separate sanitary conditions for each family living in the same building, and the other is so provided. On these grounds it was moved and passed that the City Council be requested to require the installation of proper sanitary conveniences in all suites of rooms occupied by separate families or intended to be so occupied.

WILL SUBMIT QUESTION OF FILTER PLANT

Windsor, Ont.—Windsor City Council, at a conference with the water commission agreed to submit the question of a separate filtration plant for the city, to the electors at the approaching election. Another meeting with the commissioners will be necessary to decide upon the details of the scheme.

In outlining the situation to the aldermen, William Walker, chairman of the Water Board, admitted that the commissioners were not sure whether the Proctor project or one submitted recently was the most desirable.

IMPERIAL RADIATOR MOVING TO ST. CATHARINES

St. Catharines, Ont.—The Imperial Radiator Company, Limited, a new company organized to take over the assets of the former Steel and Radiation, Limited, of Toronto and St. Catharines, is now operating the local plant, employing 125 men. The head office of the new concern will be in St. Catharines, and the old Steel and Radiation plant at the foot of Berryman Ave. will be developed as the only manufacturing plant of the industry. Plans for the future indicate employment for about 175 men within the next three months. Representatives of the company announced that orders were already in hand that would keep the plant working to capacity for the balance of the season.

The officers and officials of the Company are all from Toronto. They are:

President—J. E. McAllister.

General Manager—E. T. Wingate.

Secretary—E. M. Stokes.

Consulting Engineer—W. R. Blackhall.

Plant superintendent—W. H. Davis.

The new company plans to dispose of the former Steel and Radiation plant in Toronto, and move its offices to St. Catharines. The office staff will likely make the change within the next few weeks. Sales and distributing agencies will be maintained in Toronto and Montreal in addition to agencies in all the principal cities from Halifax to Vancouver.

Baseball team of the Standard Sanitary Mfg. Co., Toronto, which was tied for second place at the end of the series played in the Plumbing Supply League this summer. Back row, left to right—W. Treloar, infielder; W. Briggs, infielder; T. B. Cooper, catcher; C. Hobson, left fielder. Centre row, left to right—J. Davis, short stop; L. Richards, pitcher; C. Schreiber, right field; A. Banks, third base; R. Jarvie, first base. Front row, left—R. C. Clayton, second base; B. Baldwin, on the right, centre fielder.

THROUGH INJURY TO WATER SYSTEMS

London, Ont.—The use of substitutes for hard coal is blamed for furnace troubles in a large number of households this fall. Plumbers report that they have experienced an unusually large number of first-aid calls from citizens whose water systems in the furnace have threatened to flood their cellars.

In burning wood, coke and other fuel, for which a furnace is not built, it is claimed that a more intense heat is created, with disastrous results for the interior mechanism of heating systems. Water coils have suffered particularly and have sprung leaks within a few days after they are first used. Rust, due from water standing in the pipes for several months is also responsible for the leaks.

CENTRAL HEATING BY GAS

Denver, Col.—An important development in the gas industry is the announcement made here that the local gas company will undertake to heat 100 homes at a cost for gas that will compare favorably with the expense incurred when coal is used.

The price to be fixed will be approximately $1 for a million B. T. U.'s, which makes the cost of the gas equivalent to $15 a ton for the coal.

Soft coal in Denver can be purchased for less than $15 a ton, but gas at anything like the price proposed will look mighty desirable to the householder, in view of the dirt, labor and inconvenience that must necessarily accompany the burning of solid fuel.

PLUMBERS' AND STEAMFITTERS' UNION MAKES DRASTIC DEMAND

Toronto.—Plumbers' and Steamfitters' local union has placed a document in the hands of officials of the District Trades and Labor Council, who are expected by the union to place it before the Council at its next meeting as the reason for the secession of the union from the Building Trades' Council. The Plumbers' and Steamfitters' Local Union has been one of the conservative organizations of the local Labor movement, and signed an agreement last summer with contractors of the city for two years without a reduction in wages.

The document states that the union will renew its affiliation if the Council decides that no salaried officials shall be one of its members and that all delegates shall not be away from the trade for more than six months, nor hold office for more than three years. It also demands that no salaried official hold his position for more than three years in any of the affiliated organizations to the Council. It generally strikes at the salaried officials of the movement

USES EDITORIAL DATA AND ILLUSTRATION FROM SANITARY ENGINEER

Indication of how use can be made of many of the points brought out in articles in Sanitary Engineer, is this reproduction of a two-column ad used by Paddon Company, Windsor, Ont. The illustration and the idea of the Saturday night tub was taken from an article

THAT SATURDAY NIGHT
BATH
MANSLAUGHTER
This style of bathing need no longer be tolerated not even on the farm. A pressure system can be installed, and so let all the family enjoy the privileges of running hot and cold water
INSTALLED BY
PADDON COMPANY
LIMITED.
Plumbing, Heating, Sheet Metal Work
Phone 178
423 Pitt St. E.
Windsor, Ont.
"WE FIX IT."

written for Sanitary Engineer by Major L. L. Anthes and appearing in a recent issue. There is plenty of editorial material in each issue to make the subject of many good sales talks, advertisements, letters, etc., and turning this material to good account as has been done in this instance helps all concerned.

HANOVER TO SPEND $135,000 ON WATER WORKS ADDITIONS

Hanover, Ont.—The ratepayers of Hanover carried a by-law to expend $135,000 on waterworks additions, by a majority of over 100, although a light vote was polled. The expenditure will include bringing water from Rhurl Lake, three miles away, for domestic and commercial purposes, and the equipment will furnish good fire protection.

A reservoir will be erected at the lake and a water tank in town. Additional water mains in town are also provided for.

FILTRATION PLANT NEEDED FOR KINGSTON WATER SUPPLY

Kingston, Ont.—The public utilities commission decided that what Kingston needs is a filtration plant in order to secure a safer water supply. A report presented by General Manager Folger, showed that as the result of the tests recently made, the waterworks intake pipe was practically tight and that leaks were not the cause of the entry of colon bacilli into the city's supply.

A mechanical filtration plant will cost between $300,000 and $350,000.

PLUMBERS AND STEAMFITTERS SEND RESOLUTION RE TAXATION

Upholding the single tax idea—the taxation of land values instead of taxation of improvements—a resolution protesting against the city's practice of doing just the opposite was received by the Toronto Board of Control from the local union of plumbers and steamfitters. The board filed the resolution.

The present value of land in Toronto was $500,000,000, the resolution set forth, and this enabled the owners to subject the industrial classes to a tribute of $20,000,000 to $25,000,000 yearly.

The resolution divided humanity into two classes—toilers and spoilers. It stated:

"The power of appropriating wealth without work, which the present method of taxation allows, divides society into toilers, who must sacrifice their lives in keeping up the supply of necessities, and despoilers, who take the wealth without the work. Thus those who produce the wealth are crushed into poverty, while those under no obligations to produce anything take the wealth on improvement, business and income."

WINNIPEG TALKS CENTRAL HEATING

Winnipeg.—Establishment of a central steam-heating plant in Winnipeg may be the means of utilizing a wealth of hydraulic power from the Winnipeg River and reducing Winnipeg's annual coal bill by some $130,000, experts here believe. The manufacture of steam by electricity has passed the experimental stage and an electric company is launching a big campaign for the use of a patent steam generator, it was said, and the City of Winnipeg is held to be "foolish" not to take advantage of this steam heating plant project, as a means of using power from the Winnipeg River. At present the Hydro is using an average of 46 per cent. of its peak load of power. With the demands for heating in Winnipeg continuing throughout eight months it is argued, this consumption could be raised to 100 per cent. for that period, and coal could be used as a supplementary means of generating power when power consumption for other purposes was at its height. The crux of the situation, however, depends on cost of generation and distribution. If steam can be distributed at a cost equal to or even lower than the present cost of heating it is bound to be successful. A report on the general situation now is in the hands of hydro officials and a more detailed analysis is being prepared before any definite steps will be taken.

BUSINESS CHANGE

Mt. Forest, Ont.—G. E. Russell, plumber and tinsmith, has discontinued.

Suggests Brass Piping for House Plumbing

Selection of Proper Kind of Pipe Serious Question in all Communities—Says Cost of Brass Piping Only Slightly Higher

AT a conference on the housing problem held in New York under auspices of the American Society of Civil Engineers, William H. Ham, general manager of the Bridgeport Housing Co., said:

"For the complete plumbing of seven types of houses, the speaker obtained cost figures which varied from $408 to $475 per home, using 1-in. steel pipe for the water supply. The use of wrought-iron would have added about $8 to the cost, and brass pipe from $35 to $38. The cost of piping is a small part of the cost of the house. These houses averaged in value from $4,000 to $8,000.

"The selection of the proper kind of pipe is a serious question in all communities. The speaker wishes to inquire whether some water supplies are of such chemical quality that the use of brass pipe is inadvisable, and where there are any data on the carrying capacity of new to four-year old brass pipe in comparison with the capacity of steel or iron pipe of the same age? Such data would be desirable to people who are buying homes.

"The speaker is removing a certain kind of pipe in 39 apartments, in which there were 120 leaks in the hot-water system alone, and about the same number in the cold-water system. The 1½-in. pipe is being replaced by the 1-in. pipe, and the 1¼-in. pipe is being replaced by ¾-in. brass pipe. The speaker did not know, before he investigated the subject, that for a $5,000 or $6,000 house the difference in the cost of the use of brass pipe from the street to the house, and out to the hose connection, was only $38. Such matters should be brought to the notice of the public, as they are important facts which affect the housing situation. The speaker's company bought from the government 257 houses in which steel pipe was installed, which will have to be removed in about six years. After 2½ years of use, some of the pipe is rusted to such an extent that it is being removed in the damaged places.

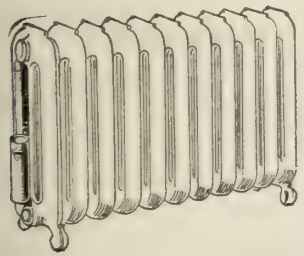
"It would be well if water supply engineers not only codified these facts, so that instead of using 1¼-in. steel pipe, one might use ⅞-in. or ¾-in. brass pipe, but also furnished data as to localities in which brass pipe might be safely used."

NEW PLUMBING GOODS

RADIATOR HUMIDIFIERS

The Sheet Metal Products Co., of Canada Ltd., Toronto, are placing on the market a new radiator humidifier.

This humidifier is designed so as to fit in between the upright sections of a hot water or steam radiator. The evaporating pan is 18 inches long by 9½ inches deep, and the supply can is three



S.M.P. Radiator Humidifier.

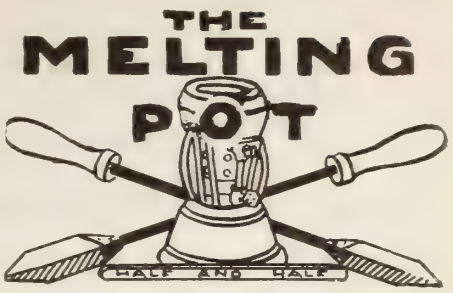
inches in diameter by 9½ inches high, this holding over two quarts of water.

The manufacturers point out that in experimenting with this humidifier, it was found that almost one quart of water per day was evaporated in a cold temperature. It is stated that in large radiators and under special conditions, two of these humidifiers can be used to each radiator, one at each end.

For the present the makers state that these products will be made in one size only and will be finished in either pearl gray or white. It is claimed that this humidifier will fit almost any standard radiator, except the very low ones.

AUTOMATIC BLOW TORCH

The Lenk Manufacturing Co., Boston, Mass., are placing on the market an automatic blow torch, which generates its own power. This is described by the makers as a convenient and practical tool for tinsmiths, farmers, autoists, and electricians. It operates on denatured oil. It is constructed in two cylinders, the size being 5½ x 2 x ⅞ inches. After filling both cylinders, the wick is ignited and it is said that within a few seconds a force is automatically generated, producing a long needle-point flame. This blow torch is non-leakable, and other features pointed out by the manufacturers are that no pumping, priming or blowing is required. This device is stated to be capable of producing a flame of more than 1,400 degrees Fahr.



The office-boy put the waste-basket down.

"I would like," said he, with one eye on the baseball program, "to go to a funeral, Mr. Cranke."

"You won't though," replied the cold-hearted manager of the plumbing supply house.

"I know it," said the office-boy, "but I would like to, just the same."

"Whose funeral?" asked Mr. Cranke.

"Yours," replied the office-boy. Then the door closed hastily between them.

* * *

Bride—Dear, if I do the cooking for a whole year, what do I get?

Plumber (just married)—My life insurance.

* * *

Traffic cop:—"Say you! Didn't you see me wave at you?"

Plumber's wife:—"Yes, you fresh thing, and if Henry were here he'd paste you one for it."

* * *

Ethelbert—"Who was that new girl I saw you with last night?"

Plumber's apprentice—"That wasn't a new girl. That was my old girl painted over."

* * *

City Editor—"Did you take down all the speaker said at the plumbers' convention?"

Cub Reporter—"No, but I have it all in my head."

City Editor—Ah, I see you have it all in a nutshell."

* * *

Lawyer—"If you expect to be acquitted, your wife will have to weep a little during the trial."

The Accused—"That's easy. Just tell her I'm going to be acquitted."

* * *

Teacher (in geography class)—"Can any one tell me where Pittsburg is?"

Small voice in rear—"Please ma'am, they're playing in Chicago."

* * * *

During a divorce trial a lawyer asked the fair plaintiff: "If you did not love him, why did you marry him?"

She answered: "You see, when he proposed he looked so cheap I could not refuse the bargain."

* * *

The advertisement that makes you want to buy the goods doesn't contain many words that you have to look up in the dictionary.

LETTERS TO THE EDITOR

Deals With Plumbing Defects in Winnipeg

Sanitary Engineer,
Toronto, Ont.

I note in your issue of the 1st inst. that prominence is given to an article headed "Plumbing Inspection Shows Many Defects in Winnipeg," which might leave an impression that there was more defective plumbing in Winnipeg than in any other City. With a view to removing this impression I got in touch with Mr. Hague, Chief Health Inspector, and I am enclosing herewith copy of letter from him which explains itself and goes quite fully into the matter of plumbing defects as found by the Health Department. I may say that the Plumbing and Sewer Inspection Department is quite separate from the Health Department, although there is the closest co-operation between us. The Health Department have a large staff and in making general inspections of buildings come across defective plumbing which inspectors on the Plumbing Department would seldom see as most of our work is confined to tests and inspections of new buildings and alterations to old buildings.

Will you kindly publish this letter and give it the same prominence as the article mentioned.

(Signed) J. W. Smith,
Plumbing and Sewer Inspector.

LETTER FROM HEALTH DEPARTMENT

October 19, 1922.

James Smith, Esq.,
Chief Plumbing and Sewer Inspector,
Winnipeg.

In reply to your letter of yesterday I beg to inform you as follows:

(1) I do not consider the number of plumbing defects mentioned in our Annual Report for 1921 (2310) very large for a City with a population of over 200,000, with about 32,000 dwelling houses to say nothing of apartment blocks, hotels and business premises at least equal in number to the dwelling houses.

We have 13 district inspectors and their instructions are to notify owners respecting not only the particular defect complained of—a leaking flush tank for instance—but for all defects noted in the course of inspection

The severe winter weather, combined with the fact that plumbing is frequently installed in buildings not properly built to withstand cold, swells the number of complaints regarding plumbing.

(2) In looking over the report it occurs to me that the item, "soil pipes, cleanouts, etc., choked or defective" might be further subdivided. I cannot give you the exact figures without a great deal of trouble as it would mean going through our files for a whole year, but the estimate given below as to the proper classification of the 199 defects noted is approximately cor-

Soil pipes having had holes bored into same for the purpose of removing obstructions and afterwards plugged with wood or left open, 85.

Soil pipes with defective joints caused either by settlement of the building or by alternate freezing and thawing, 20.

Soil pipes choked or frozen, 40.

Fresh air inlets deliberately broken off at cellar floor to allow water to escape from cellar, 5.

Cleanouts, either without caps or with loose caps. Also cleanouts fractured by rough attempts to remove caps, 49.

Total, 199.

You will note from the above that these defects are not due to the use of cast iron soil pipe. It is, in fact, extremely rare to find an instance of a defect in such a pipe which has not been caused by mechanical violence in one form or another.

You are quite right in surmising that the contrary was not the case. I feel sure that if the tile pipe were allowed inside of buildings in this city the percentage of defective pipes would be much larger than is the case at present.

I trust that this explanation may throw a little more light on the subject.

(Signed) Ernest W. J. Hague,
Chief Health Inspector.

FORTY-ONE YEARS A PLUMBER; HAS SOME NOVEL IDEAS RE FUTURE STATUS OF OPERATORS.

Editor, Sanitary Engineer,
Toronto, Ontario.

It is with pleasure I write you to let you know that the plumbing and heating business in this district is making strides possibly in company with many of the other cities in Canada and possibly better than the most of them. As I have been a resident of the Border Cities for many years and have been in the plumbing and heating and metal lines for 41 years, 37 of these in partnership with Mr. Jas. Pennington, and since separating from him, conducting another plumbing and heating business myself, and with the assistance of my son. It appears to me the day is nearly at hand when the plumbing and steam and hot water heating business should be conducted as a separate business from any other line. It may be necessary in small towns and villages to add other lines, but in cities and towns of a reasonable population the ordinary mortal will apply his efforts to the lines first mentioned. I think he would have enough to do and could, in a sense, be of more service to this his (major line) as is usual, the people. Generally if one is referred to as a plumber he is considered a (Jack of all Trades). This idea should, I think, be combatted with from all angles if we are to be considered mechanics in the proper sense of the word. I mention this matter only from a standpoint of years of experience in connection with the combinations of various lines such as sheet metal lines, hardware, electric wiring, excavating, sewer building, and when two or three other lines have to be tagged onto the plumbing and heating to get along, there is a spirit of selfishness added, or hungriness for more profits. Why not get it down to brass tacks? I think the ordinary man after putting in say 20 to 30 years service as a boss or journeyman plumber, the government ought to have laws passed so that he could qualify to pass an examination as a sanitary doctor and charge fees accordingly for his advice. Shouldn't he be entitled to it?

I was talking to a friend some time ago and the question of adding to the name of college graduates the titles they aspire to, namely doctor of whichever profession they pass for, and a blacksmith was mentioned and it was thought that he might have P. H. S. added and put on his sign board, reading like this: John Jones, practical horse shoer. Now what about the plumber or sanitary engineer? The people generally laugh when a plumber adds this last title to his name, and can he do it and comply with the law? How many are entitled to this term? The usual examinations by boards are a farce. What could be and should be done is to have a provincial standard plumbing and heating by-law passed by the Government and incorporate in same some of the points that would help the public and the business.

(Signed) M. A. BRIAN,
Windsor, Ontario.

Catalogs and Booklets

PLANNING THE NEW HOME.

Under the title of "Planning the New Home," the Spencer Heater Co. of Canada, Ltd., Toronto, have issued a new descriptive folder with particular reference to the Spencer self-feeding boiler. In addition to a number of illustrations of the different types of self-feeding boilers and the purposes of same, there are several descriptions of these boilers installed under various conditions and circumstances. It is pointed out that they can be utilized for homes, stores, schools, theatres, factories, apartment houses and other needs, a different series being available for each purpose. The advantages claimed for the self-feeding type are also enumerated in this folder.

WESTERN ONTARIO NEWS

M. G. Cole, of Forest, Ont., wants prices on heating, plumbing and electrical equipment in connection with new $5,000 residence for which plans are being prepared.

Ratepayers at Parkhill, Ont., carried by-law to expend $3,000 on repairs to standpipe and extensions to water mains.

Charles Bartlett, of Arkona, Ont., wants prices on heating and plumbing for new $5,000 residence for which plans are to be prepared.

Charles West, London, Ont., has been awarded heating and plumbing work for new duplex dwelling being erected by J. H. Plested.

Ed. Johnston, Aylmer, Ont., wants prices on hot air heating, plumbing and electrical work for new $4,000 bungalow on which work is to start immediately.

A. Coulter, Seaforth, Ont., wants prices on hot air heating, plumbing and electrical work for new $4,000 residence.

George Elson, St. Catharines, Ont., wants prices on hot water heating, plumbing and electrical work for new $5,000 residence.

Miss Jackson, matron Children's Shelter, London, Ont., wants prices on hot air heating, plumbing and electrical equipment for new $7,000 residence on which work is to start immediately.

William Skelly, 242 King St., London, Ont., has been awarded plumbing and heating contract for new $30,000 addition for T. H. Kingsmill Dry Goods Co.

Supt. William Lashbrook, who has been in charge of W. F. Mooney's plumbing business at Acton, Ont., is starting in business for himself at Elora.

Joseph Wesenberg, Mitchell, Ont., wants prices on hot air heating, plumbing and electrical work for new $4,000 residence for which plans are being prepared.

Building Inspector A. M. Piper, City Hall, London, Ont., will call for tenders Oct. 21 for erection of new city registry office to cost $50,000. Prices wanted on hot water heating, plumbing and electrical equipment.

London Shipping Containers, Limited, London, Ont., are calling for tenders until October 25 for all work in connection with new $60,000 factory.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

Markets at a Glance

TWO SEPARATE increases in solders within a few days supply the feature price revision on the current sanitary and heating supply markets. Both these changes indicate the recent trend of quotations on basic lines, the majority of revisions having been advances of a more or less marked extent. Zinc sheets also register an advance in price, while lead sheets are increased in some quarters. Compression bibs are at new price levels, with stop and waste cocks also appearing with revised discounts. Radiator valves are higher in price, while closet quotations have been revised in some instances, both increases and declines being noted in this direction. Additional advances are recorded in many ingot metals, tin and spelter leading the field in this respect. Wrought piping is now on a distinctly firm market trend, an advance having been put into effect on primary markets. Although raw cotton and practically all manufactured cotton lines are higher in price, no changes have been recorded in cotton wastes. Quotations on galvanized sheets are slightly easier in eastern centres, but the general undertone has shown no marked development. Many products needed in building are enjoying a prolonged Fall season, this unusual activity being attributed to the fine weather conditions experienced during the past few weeks which has enabled builders to rush to completion many dwellings and similar erections. Interior finishing is the rule, and the movement of enameled ware products, radiators and boilers, range boilers and pipe fittings is correspondingly active. Some unsettlement is evident in corrugated sheets, price shading to some extent on the lighter gauges having re-appeared. Pig iron quotations have declined three dollars per ton, and the feeling generally prevails that the peak of prices in the steel industry has been reached for the present, at least. Under prevailing conditions, no marked advances are looked for in the immediate future, as the quiet season is now approaching.. The asbestos market continues in a quiet state. Western centres record easier quotations on standard brass valves, boiler tube expanders and melting ladles.

Montreal Markets

MONTREAL, October 30.—Price revisions on plumbing and steam-fitting supplies during the past two weeks offer a variety, but attracting attention are higher prices on both lead sheets and solders. The former products are increased one-half cent per pound, and solders in the various grades are advanced one cent per pound. Through a revision in discounts, radiator valves are slightly higher in price. Quotations on certain closet combinations, separate bowls and tanks are revised in some quarters, both higher and lower prices being featured in the change. Other enameled ware products are nominally unchanged, but there is still a good amount of unsettlement noted in the market. Galvanized sheets are reduced twenty-five cents per cwt. The undertone of the market for sheets is still firm, however. Wrought pipe displays a strong tendency, quotations on steel piping being advanced recently on American markets. Ingot metals continue to advance, tin, lead and spelter showing a marked gain during the past two weeks.

HEATING SYSTEMS STILL ON ACTIVE MOVEMENT

Montreal.

Manufacturers of hot water and steam boilers, radiators, also stoves and heaters, are still enjoying an active demand for their products. Although the season is advancing, stoves are selling in particularly good volume, and a brisk trade well into next month is now anticipated. With regard to heating systems, new construction work is still making progress and the outlook in this respect appears promising for later months. There is still a firm tendency in the market generally, the recent easier trend in pig iron only having an indirect bearing on the manufacture of these products up to the present. Manufacturers were naturally fairly well supplied in anticipation of the active season, and other basic costs are yet on a high plane.

RADIATORS AND BOILERS—

Radiator list prices are for 1, 2, 3, 4 and 5 column radiators, per sq. ft.

45 in. to 38 in., $1; 32 in., $1.10; 30 in., $1.15; 25 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60. Discount 55 per cent for hot water, and 56 per cent for steam.

Wall radiators—5 ft., $1.15; 6 ft., $1.10; 7 ft., $1.05; 9 ft., $1.05; 12 ft., $1.05; Discount 52 per cent.

Boilers—Round hot water boilers, sizes from 0 to 10, 60 per cent. off list. Square or sectional hot water or steam boilers, 15 in., 15 per cent. Square or sectional water boilers, 19 in. to 36 in., 20 per cent. Square or sectional steam boilers, 19 in.. to 36 in 17 per cent. Ontario Government trimmings, 15 per cent.

Round steam boilers, standard trimmings, 28 per cent. Ontario Government trimmings, 25 per cent.

F.o.b. Montreal. Toronto. Guelph.

REVISED DISCOUNTS ON RADIATOR VALVES

Montreal.

Through a revision in discounts, radiator valves, both standard and with removable disc, are increased in price approximately ten per cent. The discount is now 54 per cent., formerly being 58 per cent. In the list of compression goods a few other lines of brass valves are slightly higher, although the standard line remains at former quotations. Following are prevailing discounts:

Compression work, standard	45%
Fuller work, standard	30%
Quick opening compression bibbs	43%
Bath cocks, quick opening	41%
Bath cocks, compression	41%
Basin Cocks Compression	34%
Basin cocks, quick opening	46%
Flatway stop and waste cocks, standard	54%
Roundway stop and waste cocks, st'nd'rd	46%
Brass steam cocks, standard, ¼ in.	50%
Radiator valves, standard	54%
Do., removable discs	54%
Globe, angle and check valves, standard	25%
Gate or straightway	25%
Emco globe valves	33%
Emco check valves	33%
Jenkins globe, angle, check and swing check	10%
Jenkins gate or straightway	16%
Jenkins iron body, globe and angle	5%
Jenkins iron body, gate	25%
Jenkins iron body, globe and angle	15%
N. P. "O" and "S" traps	40%

STEADY TONE IN SOIL PIPE AND FITTINGS

Montreal.

Soil pipe and fittings remain at unchanged discounts with the undertone of the market continuing fairly firm. Manufacturers, however, now anticipate a steady market as the strong tendency, while still present to a degree, is not as marked as in previous

weeks owing to an improved situation in the coal and pig iron markets. Demand for both pipe and fittings is good, and is keeping up remarkably well notwithstanding the advancing season. Present quotations are as follows:

SOIL PIPE—	
2 and 3 inch	35%
4 inch	35%
5 and 6 inch	35%
8 inch	net
FITTINGS	
2 to 6 inch	45%
8 inch	net

LITTLE CHANGE RECORDED IN SCRAP MARKETS

Montreal.

There is little or no change to report in the waste material markets, prices remaining nominally unchanged, and activity now described as limited. Insofar as iron and steel scrap is concerned the improved situation in pig iron is pointed out as having a tendency to check any great movement. Non-ferrous metals are quieter after the temporary showing in past months, and dealers report only a hand-to-mouth business. Scrap rubber is very dull, and following are average dealers' buying quotations:

WASTE MATERIALS—	
Automobile Tires	0 50
Rubber shoes	0 02
Yellow brass	0 05 to 0 06
Red brass	0 08¾
Light brass	0 04
Scrap zinc	0 04
Lead, heavy	0 04½
Lead, tea	0 03
Light copper	0 08½ to 0 09
Heavy copper	0 11½
Wrought iron, R. Rd., No. 1 per gr.ton	10 00
Malleable scrap (ton)	9 00 to 10 00
Pipe scrap (ton)	7 00
Heavy melting steel	9 50 to 10 00
No. 2 busheling	8 00
Boiler plate	8 00 to 9 00
No. 1 machinery cast	20 00 to 22 00

NO CHANGE IN COTTON WASTE PRICES

Montreal.

Notwithstanding higher quotations are announced on practically all other cotton goods, prices on cotton wastes remain unchanged. Dealers state that the undertone of the market is undoubtedly firmer, but it is altogether likely that no revision will be made until later on in the year. Current trade is said to be quite seasonal, and following are prevailing prices:

COTTON WASTE—Cream polishing, 18c. per lb.

White—XXX extra, 16c.; XX grand, 15c., XLCR, 14c; X Empire, 13c; X press, 11½c.

[illegible] 14c. Lion, 12c; Popular, [illegible] 11c.

Wool Packing—Arrow, 24c.; Axle, 20c.; Anvil, 16c.

Dominion Wipers—White cotton, 20c; colored cotton, 14c.

GALVANIZED SHEETS LOWER IN SOME QUARTERS

Montreal.

The expected revision in galvanized sheet prices is now announced by certain local distributors who are quoting all gauges at twenty-five cents per 100 lbs. lower than former figures. This change is made in face of a fairly firm undertone in the market, as outlined in previous issues, and is due to more ample supplies available and a stock accumulation in some quarters. To strengthen the tendency in these products the close of navigation is again pointed out as a factor to be considered in future, and in the opinion of local dealers, any further decline, if any, will be very gradual.

Imports from overseas are arriving and between now and the close of navigation regular shipments are expected. Black sheets are unchanged with a range still noted among jobbing circles. Average quotations are the following:

BLACK SHEETS—		
10 gauge, base	4 00	4 50
12 gauge	4 10	4 60
14 gauge	4 20	4 70
16 gauge	4 30	4 80
18-20 gauge	4 55	5 05
22-24 gauge	4 60	5 20
26 gauge	4 65	5 25
28 gauge	4 75	5 35

Sheets, 36" wide, 10c. per 100 lbs. extra.

GALVANIZED SHEETS—		
Queen's Head—		
28 gauge	7 00	7 75
26 gauge	6 75	7 50
24 gauge	6 15	6 90
22 gauge	5 80	6 30
18-20 gauge	5 10	5 85
Other Brands—		
10¾	6 75	7 50
28 U. S. gauge	6 35	7 10
26 U. S. gauge	6 05	6 80
24 gauge	5 90	6 65
22 gauge	5 90	6 50
16 gauge	5 60	6 35

Theses prices are for full bundles, an extra charge of from 25c to 35c is made for broken lots. Extra for sheets 3 ft. wide, 28 gauge and 10¾ oz., 20 cts. per 100 lbs. Further extra for sheets 4 ft. wide, according to gauge.

TIN PLATE—Coke	
20 x 28 x 100 lb. basis	12 50
20 x 28 IC, 112s	12 00
20 x 28 IX, 112s	15 00
20 x 28 IXX, 56s.	9 00
20 x 28 IXXX, 56s.	9 75
TERNE PLATE—	
20 x 28 IC, 112s.	14 00
CANADA PLATE—	
Dull, 52s	5 00
Dull, 60s	5 10
Blued ..2s ..5	5 25
Blued 60s	5 35
Welsh, polished, 52s	7 00
Welsh, polished, 60s	7 25
Galvanized, 52s.	7 25
Galvanized, 60s	7 75

NO CHANGE IN LOCAL CEMENT PRICES

Montreal.

Current quotations on cement are unchanged notwithstanding slightly lower levels which have been reached in other domestic centres. A slight weakening in the local market however would not be surprising as a slower movement of this product is now in evidence and transportation costs are on a slightly lower basis. Unchanged quotations are the following:

CEMENT—	
Car load lots, per bag, f.o.b.	
Per bag, f.o.b. steam cars	0 92
Per bag, delivered	1 00
Less car lots, per bag, f.o.b., yard	1 00
Per bag, delivered	1 10

Less 5 per cent.
Rebate of 20 cents for empty bags.

ADVANCE WROUGHT PIPE ON PRIMARY MARKETS

Montreal.

In describing the firm tone still noted in the wrought iron and steel pipe market local mills point to the recent advance in American mill prices, steel pipe having been further advanced four dollars per ton. This stronger tendency has continued in this product notwithstanding the revision in August last when all sizes were brought to higher levels. A strong factor in the market has been the good demand which has continued all through the summer and fall months, the call at the present time said to be well up to expectations. Local mills are gradually improving the delivery question, but they are still in the midst of an active season. Quotations are firm at list No 56.

BAR PRODUCTS MARKET DISPLAYS STEADY TONE

Montreal.

A steady market tone now prevails in iron and steel products, and notwithstanding a decidedly easier trend in the pig iron markets, any recession in the prices of finished products is not thought to be in line, for the present at least. As far as local price levels are concerned it is realized that these are lower than in other domestic market centres, and on a closer margin with mill prices. Thus while keen competition is undoubtedly responsible for this it is not likely that distributors will announce a recession in face of a steady tone in production circles. Business in general is reported as seasonal, this month and November usually bringing an improved buying movement over the previous summer period. The absence of larger construction work however is still felt. Following are quotations for average sized inquiries:

BAR IRON—	
Common bar iron, 100 lbs.	3 15
Refined iron	4 65
Irish finish machinery steel	3 20
Mild steel	3 15
Single reeled machinery steel	5 25
Band steel	3 65
Spring steel	4 75 8 50
Sleighshoe steel	3 15
Tire steel	3 35
Harrow tooth steel	3 30
Toe caulk steel	4 05
Mining tool steel, per lb.	0 20½
Black Diamond tool and cast steel, per lb.	0 20½

NOTE—Refined iron is approximately $1.50 per 100 lbs. over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs extra.

PIPE FITTINGS STILL ON FIRM PRICE BASIS

Montreal.

A fair seasonal trade continues in pipe fittings, with the undertone of the market remaining firm. Although there was a feeling among the local distributors a few weeks ago that higher prices were likely there is still said to be no definite indication that such a change is probable, although chances of any recession are very remote.

PIPE FITTINGS—	
Cast iron fittings	27%
Plugs, cast iron	27%
Do., solid	27%
Do., countersunk	27%
Bushings, cast	30%
Do., malleable	30%
Unions	45%
Flanged unions	27%
Flanged fittings	27%
Dart unions, black,	33 1-3%
Dart unions, galv.	13%
Nipples, ⅛ to 4", close and short	55%
Do., long	60%
Do., 4¼ to 8", close and short	45%
Do., long	50%
Couplings, 4" and under	25%
Do., 4¼" and larger	5%

Malleable Fittings—
Piece list effective June 1st, 1922. Discount 70 per cent.

LEAD SHEETS AND SOLDERS AT ADVANCED LEVELS

Montreal.

Higher quotations are now announced on all grades of solder and all weights of lead sheets, the firmer tone in metals on primary markets reflecting on these products. Lead sheets are advanced one-half cent per lb., while solders are one cent higher throughout. Virgin metals cotninue in a strong position, spelter and lead showing steady gains during the past week, while tin closely follows. Although other lead and zinc products remain at former figures, there is a very firm undertone evident in the market in general. Following are revised quotations:

LEAD AND ZINC PRODUCTS—

Lead pipe, per 100 lbs. up to 2"	13 00
Do., 2" to 8"	14 00
Do., 8" and over	15 00
Lead waste, per 100 lbs.	14 00
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	15%
Lead wool, lb.	0 13½
Lead sheets, 2½ lbs., sq. ft. lb.	0 11
Lead sheets, 3 to 3½ lbs., sq. ft. lb.	0 10¾
Do., 4 to 8 lbs., sq. ft. lb.	0 10
Cut sheets, ¼c. lb. extra and cut sheets to size, ¾c. lb. extra.	
Solder, guaranteed, lb.	0 26
Do. strictly, lb.	0 23
Do., commercial, lb.	0 23
Do., wiping, lb.	0 22
Do., wire, lb.	0 36
Zinc, sheets, casks	0 11
Do., broken lots	0 11½

UNSETTLEMENT EVIDENT IN CORRUGATED SHEETS

Montreal.

Following a period when corrugated sheet prices were on a fairly steady basis, there are again signs of an unsettled feeling, with prices being shaded in some quarters. Conditions in the market for these products have varied considerably during the past months, and while the fact that supplies of flat sheets being none too ample recently, steadied the market tone, there was formerly the unsteadiness which is now again showing. Business continues in fair proportion although not as brisk as a few weeks ago, and this is also said to be assisting towards an unsettled feeling. List prices and average discounts are the following:

CORRUGATED SHEETS—	Per 100 Sq. Ft.
No. 28 gauge	$6 50
No. 26 gauge	7 00
No. 26, U. S. gauge	8 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50

Less 10 per cent

Lighter than 24 gauge and wider than 27 inches, 75c. per square extra.

CLOSET QUOTATIONS COME UNDER REVISION

Montreal.

Current quotations on certain closet outfits, separate closet bowls and tanks are revised in some quarters. There is therefore a distinct variation among local supply houses, and prices are considered purely nominal. Price shading has been more or less common on these products, and whether the present revision will remedy this situation is thought doubtful. Changes recorded include slightly higher levels on vitreous china closets and enameled iron tanks, while in bowls, the Richelieu and syphon jet bowls are a little lower in price. Oak and enameled iron tanks are reduced, while the china tank is one dollar higher. Following are nominal quotations at revision:

CLOSET COMBINATIONS—

	each
Low down outfits,	
Closet, standard outfit, oak	25 00
Do., post hinge seat	26 00
Do., oak vitro or Pussyfoot	26 00
Do., post hinge seat	26 20
Do., mahogany vitro or Pussyfoot, post hinge seat and cover	28 45
Do., vitreous china, oak post hinge seat and cover	28 45
Do., vitreous china, mahogany post hinge seat and cover	29 50
Do., white Vitro mahogany post hinge seat and cover	29 50
hogany post hinge seat and cover	28 70
Do., enamelled iron tank, oak post hinge seat and cover	29 50
Do., enamelled iron tank, oak post hinge seat and cover	29 50
post hinge seat and cover	29 50
Add for ⅜ in valve on supply pipe	1 25
Add for spud	0 60
Add for reverse trap bowl	1 50
Add for syphon jet bowl	7 00
Deduct for supply pipe	0 80
Deduct for floor hinge	0 60
CLOSET BOWLS—	
Richelieu bowl	8 50
Washdown bowl with spud	10 60
Reverse trap bowl with spud	11 35
Syphon jet bowl with spud	16 25
CLOSET SEATS—	
Oak post hinge seat and cover	3 85
Oak wood strip seat and cover	3 50
Mahogany finish post hinge seat and cover	4 05
CLOSET TANKS—	
Low down, oak vitro with fittings, less seat	12 25
White vitro or Pussyfoot with fittings, flush elbow and supply	15 65
Vitreous china tank with fittings, flush elbow and supply	19 00
Enamelled iron with fittings, flush elbow and supply	16 50

RANGE BOILERS SELLING IN GOOD VOLUME

Montreal.

The sales movement of range boilers is again reported to be quite satisfactory, an improvement being noted in more recent weeks. Apart from the amount of new construction work demanding supplies, the season is now well on hand when old boilers need replacement, or new installations are made in older dwellings, before the cold weather sets in. No further changes in quotations have been made since the revision of a few weeks ago, and following are list prices and prevailing discounts:

RANGE BOILERS:—

5	Gallon	$13.50
12	"	14.00
18	"	15.00
25	"	16.50
30	"	17.50
35	"	20.50
40	"	22.75
52	"	38.00
66	"	60.75
82	"	74.00
100	"	103.00
120	"	117.00
144	"	164.00
168	"	187.00
192	"	210.00

Standard 45 per cent. Extra Heavy, 35 per cent.

VERY LITTLE CHANGE IN ENAMELED PRODUCTS

Montreal.

The market for enameled ware products has recorded very little change during the past two weeks, sales continuing in moderate proportion for this season of the year and quotations on all lines remaining nominally unchanged. There is still evidence of unsettlement, and prices are shaded in most quarters. One local distributor stated that in an endeavour to adhere to prevailing prices they found that business did not reach beyond the inquiry stage. Opinions are expressed that no definite change in quotations is likely for the following weeks at least. List prices and discount are as follows:

ENAMELED WARE—

	1 only	2 only	3 only
Sinks, roll rim—			
18 x 30			$23 00
Sinks, flat rim—	$ 7 50	$ 7 40	$ 7 30
16 x 24	8 70	8 60	8 50
18 x 30	9 90	9 80	9 70
20 x 30			
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in wide			51 40
Bath tubs, 5½ feet.			57 10
Lavatories—			
17x19 in. Apron F139 or P4045			15 30
18x24 in. Apron F154 or P3845 or P2847			23 60
18x21 in. Apron F169 or P4205			17 60
17x19 in. Roll rim. F241 or P4345			12 60

Less 33 1-3 per cent.

STEADY TONE IN TROUGH AND PIPE

Montreal.

No further change has been announced in prices on eavestrough and conductor pipe since the upward revision in both products a few weeks ago. These goods are stated to be on a steady market basis owing to the present position of galvanized sheets, and while these are slightly easier at the present time in some quarters, there is a fairly strong undertone evident. Prevailing quotations are:

EAVESTROUGH:

O. G. round and half round, per 100 ft. 8 in., $16.90; 10 in., $18.70; 12 in., $22.20; 15 in., $29.80; 18 in., $37.80.

O.G. Square bead, per 100 ft.: 8 in., $15.90; 10 in., $17.70; 12 in., $21.20; 15 in., $28.80; 18 in., $36.80.

Discount 70 per cent.

CONDUCTOR PIPE—Round. Plain and Corrugated. per 100 ft.; 2 in., $18.40; 3 in., $22.30; 4 in., $29.60; 5 in, $40.00; 6 in, $49.00; 6 in., $49.00.

Discount 70 per cent.

CONDUCTOR ELBOWS—

Plain or corrugated, price per doz.

2 in., $5.25; 3 in., $6.00; 4 in., $10.50; 5 in., $24.00; 6 in., $29.00.

Discount 60 per cent.

FURTHER ADVANCED PRICES ON MOST INGOT METALS

Montreal.

Metals generally are very firm in tone, copper appearing to be the only metal neglected. There is a considerable buying movement in other lines on all markets, and while present figures may appear high it is thought probable that even higher prices will be seen.

TIN.—This metal has advanced daily in London with heavy transactions, and there is evidently great interest being taken. The advance is considered more or less artificial, but it can likely be maintained for some time. Local market is firm at 40 cents.

COPPER.—There is no particular improvement in this metal, but the decline has at least been arrested and the market is a little steadier. Producers are somewhat firm in their ideas, but export business is still light and until this improves there is little likelihood of any advance. Quotations are unchanged at 17¾ cts. for electro, 17½ for casting.

LEAD.—London has been very firm during the past week and prices have touched a new high for the year. The

American market is also firm and the outlook would seem to promise higher prices. Quotation locally is advanced to 7¾ cents.

SPELTER.—Spelter shows surprising strength in London and there have been inquiries for export from the U. S. which has a firming tendency on American markets. East St. Louis is quoted at over 7 cents, which represents an advance of over 60 per cent. in the past three or four months. Local market strong at 9½ cents.

ANTIMONY.—Offerings from China are somewhat higher in price, and a general improvement is looked for in this metal. Supplies are scarce and the market is firm at 7¼ cents for Chinese and 7¾ cents for high grade English.

ALUMINUM.—There is very little change in aluminum either locally or in outside markets, and price remains at 22 cents.

Toronto Markets

TORONTO, Oct. 30.—All grades of solder, brass compression bibbs, stop and waste cocks, radiator valves, zinc sheets, pig iron and ingot tin and spelter, supply the premier price developments in the current market for plumbing goods. Two separate advances have been recorded in solders, this change reflecting the upward climb of primary metals. New discounts appear on radiator valves, which place these products on a higher level, and a similar advance is recorded on zinc sheets. Pig iron is easier in price, but quotations on tin and spelter have shown marked strength with higher levels prevailing. Current trade in such products as enameled ware, radiators and boilers, closet outfits, pipe fittings and range boilers is generally fairly active for this season of the year, the fall period having been extended in many quarters through favorable weather conditions.

MODERATE ACTIVITY IN LOCAL STEEL TRADE

Toronto.

Steel markets during the past weeks are reported moderately quiet, but on the whole current business has been well up to expectations. The prolonged favorable weather is described as an assisting factor in some directions. The viewpoint is expressed that no general price changes are anticipated, local quotations being fairly steady and at unchanged levels. Present indications are that this trend will remain in evidence during ensuing weeks. The opinion is generally held, however, that the upward price movement is over for the present and while a fair amount of activity is mostly recorded, it is stated that the usual quiet session lies ahead and therefore any future developments are considered likely to be of a downward nature. Prevailing average local prices follow:

IRON AND STEEL—

Mild steel bars, base	3 25	3 40
Mild steel bands, 3-16 base	3 75	3 90
Bar iron, base	3 25	3 40
Angle, iron base	3 35	3 50
Horseshoe iron		3 90
Tire steel		3 50
Spring steel	7 00	8 00
Sleigh shoe steel		3 40
Toe caulk iron		4 10
Hoop steel	4 50	4 75
Norway iron		12 50
Crucible cast sheet steel		28 00
Mining Drill steel		18 50
Cast steel bars, spring grade		30 00
Do., do., Medium		18 00

EASIER PRICES ON PIG IRON MARKETS

Toronto.

A decidedly easier trend is noted in the pig iron market. Several weeks ago the outlook in this direction was for continued higher prices, but upon the resumption of coal supplies, it is stated that too many furnaces blew in, and declines have already been recorded in certain American production centres. Reduced quotations are also noted locally, the prevailing level being $36.30. This change of front is evident in domestic as well as other markets, the booking for the first quarter being described as noticeably less active. Now that the change in price is recorded, however, more interest in this direction is generally looked for.

ZINC SHEETS REGISTER ADVANCE IN PRICE

Toronto.

Prices on zinc sheets have been advanced another one cent per pound, this change bringing the average local quotation to within 11 and 12 cents per lb.

HIGHER QUOTATIONS NOW IN EFFECT ON SOLDERS

Toronto.

An advance has now developed in solder prices. The extent of the increase is one cent per pound on the various grades of commercial, strictly and wiping solder. The quotation on wire solder of thirty cents per lb., remains unchanged. This movement is generally attributed to the steady upward climb of primary metal costs, tin being slightly higher with spelter distinctly gaining. While varying fluctuations have occurred in the virgin metal markets, manufacturers of solders and lead goods generally point out that the gradual improvement has strengthened the raw material situation.

ANOTHER ADVANCE IN QUOTATIONS ON SOLDER

Toronto.

Just as Sanitary Engineer goes to press, a further advance is recorded in solder prices. All grades are advanced another one and a half cents per pound, which makes a total advance of two and a half cents within a few days. Wire solder prices are also higher, the revision in this case being one cent. As pointed out, these upward changes are the result of the climb noted in primary metals, tin and spelter registering unusual strength with consequently higher levels. Following are the new quotations:

LEAD AND ZINC GOODS—

Lead pipe, list, per lb.		0 13
Lead, waste pipe, list, per lb.		0 14
Do., over 8 in., list, per lb.		0 15
Lead pipe is subject to a discount of ten per cent.		
Lead traps and bends less, 15 per cent.		
Lead sheets, 4 to 6 lbs., sq. ft. in rolls, lb. $0.09½.		
Cut sheets, ½c to ¾c lb. extra and cut sheets to size. 1c lb. extra.		
Solder wire, per lb.		0 31
Do., commercial, lb.		0 25
Do., strictly, lb.		0 23½
Do., guaranteed, lb.		0 26½
Do., wiping, lb.		0 23½
Zinc sheets, per lb.	0 11	0 12

COMPRESSION BIBBS AT NEW PRICE LEVELS

Toronto.

Certain numbers of compression bibbs now appear with revised discount levels, while radiator valves have been advanced in price. The new discount on radiator valves is 54 per cent., compared with the previous level of 58 per cent. Stop and waste cocks, No. 3480 are now quoted at 45 and 30 per cent. off list, while No. 3438 are less 65 per cent.

Compression stop and waste, No. A-332, has also been changed, the new discount being 65 per cent., compared with the former level of 50 per cent.

VALVES—	Per cent.
Compression work, standard	45
Fuller work, standard	30
Bath cocks, compression	41
Do., Fuller	25
Flatway stop and wastecocks, stand'd.	54
Roundway stop and waste cocks std.	46
Brass steam cocks, standard ½" to 2"	50
Do., 2½" to 3"	43
Globe, angle and check valves, std.	25
Mueller globe, angle and check	25
Mueller composition disc steam valves	33
J.M.T. valves, screwed	10|10
J.M.T. gate valves, screwed	16|10
Jenkins gate or straightway, screwed	16|10
Jenkins, globe, screwed	10|10
Radiator valves, standard	54
Do., removable disc	54
Emco, J. D., rad. valves, screwed	33
Emco swing check, ⅜" and ½"	40
Do., other sizes	33
Webber gate valves, screwed	33
Emco globe valves, std.	25
Emco globe valves, J.D., screwed	33
Basin Cocks—	
No. 0 and 1 Fuller pattern	30
Quick opening No. 3633	50
No. 3623, plain or index handle	34

RETURN OF UNSETTLEMENT IN CORRUGATED SHEETS

Toronto.

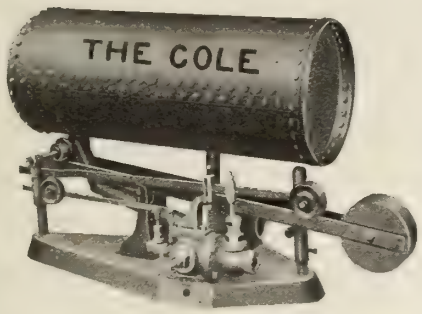
Due to the larger stocks of flat galvanized sheets, and the lower prices recently announced on these goods, this condition has been reflected in the corrugated market, an easier trend having developed during recent weeks.

The active season is now drawing to a close, and it is stated that price shading on smaller sizes has again become apparent in certain quarters. The opinion was expressed by one local distributor that this unsettlement is not generally looked upon as serious. No change

(Continued on page 34)

The "COLE" For COAL ECONOMY

The "COLE" Trap has self-adjusting packing glands, operating on Roller bearings, on a fixed fulcrum which permits of full discharge at each operation.



The Return Trap will receive water from Lifting or Non-Return Trap, or High or Low pressure and return back and into boiler.

The Lifting Trap will receive water from any pressure and discharge to Return Trap.

The Non-Return Trap will hold back the steam and discharge the water into any receptacle with lower pressure than coil to be drained. It has a valve opening as large as the pipe connection and will cause no more friction than 20 ft. of pipe.

Full information on request.

GRANT E. COLE CO.

21 RIVER ST. ∴ TORONTO, CANADA

The Foundation of a Better Canada

It is in a nation's homes that is found the strength or the weakness of the land; not in armies or navies, nor in glittering cities, nor in weekly bank clearings.

"You can measure" says an authority, "the progress of any civilization by the character of its homes."

Sanitary Engineer is striving always to raise the standard of Canadian homes.

A house equipped with modern plumbing and modern plumbing fixtures is, invariably, adequately furnished otherwise.

More and more, every day, the modern home is being "built around the bathroom."

Through its editorials and the advertising matter in its pages Sanitary Engineer is constantly urging more and better sanitary equipment—which makes for better homes, better citizenship—the foundation of a better Canada.

The Everlasting Veneer Toilet Seat

Strong, Clean Hygienic

This reliable, dependable toilet seat is made of 7 and 9-ply, air-seasoned wood veneer, held together by our special wood cement. This cement is proof against heat, cold or dampness. The veneering is distributed according to the strain and wear required of the different parts. The Everlasting Seat will never crack, warp or split.

It is a splendid seat for use in cold, damp basements where closets must be installed. The Everlasting Toilet Seat will meet, and successfully resist, these severe conditions of moisture, changing temperature, etc.

Canadian Veneering Company, Incorporated

Acton Vale Quebec

TORONTO MARKETS

(Continued from page 32)

in quotations has been announced, the nominal list still being quoted, it being pointed out that corrugated sheets did not advance in proportion when the strength in flat sheets was most apparent.

CORRUGATED SHEETS—	Per 100 Sq. Ft.
No. 28 gauge	6 50
No. 26 gauge	7 00
No. 26, U. S. gauge	8 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50

Less 10 per cent.

Lighter than 24 gauge and wider than 27 inches, 75c. per square extra.

INTERIOR WORK BRINGS CALL FOR ENAMELWARE

Toronto.

Trade in enameled ware products is still keeping up in fair volume for this season of the year, the many new buildings that have recently been erected throughout both city and country districts, but especially in urban localities, now undergoing the stage of interior finishing. Much fall construction work has been rushed to completion as far as outside and roughing in is concerned, and with attention being paid to bath and basin fixtures, a fair trade in these products is being recorded. Unchanged quotations follow:

ENAMELED WARE	
Enameled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.	51 40
Do., 5½ ft.	57 10
Lavatories—	
17x10" Apron F139 or P4045	15 30
18x24" Apron F154 or P3845 or P3847	23 60
18x21" Apron F189 or P4205	17 60
18x21" Roll Rim, F197, F199 or P4055	15 40
17x19" Roll Rim, F241 or P4345	12 60
Sinks, Roll Rim, 16x24 in.	18 10
Do., 18 x 30 in.	23 00
Do., 20 x 30 in.	24 70

Sinks, Flat Rim—	3 only	2 only	1 only
16x24	$7 60	$7 70	$7 80
18x30	8 50	8 60	8 70
20x30	9 70	9 80	9 90

Above prices, list, less 33 1-3 per cent.

All steel enamel baths, 4 and 4½ ft.	$14 00
Do., 5 ft.	15 00
Do., 6 ft.	16 75

Steel bath quotations are net.

QUIET CONDITIONS PREVAIL IN ASBESTOS MARKET

Toronto.

"Quiet" is the term given to the asbestos market when describing the current condition of these products. Very little variation is recorded, either in the volume of trade or the prevailing quotations, which remain unchanged. Prevailing discounts follow:

[illegible] PRODUCTS	
Pipe Covering	
Air cell, 4 ply	60 per cent. off list.
Air cell, 3 ply	65 per cent. off list.
Air cell, 2 ply	67½% off standard list.
Boiler Covering	$1.50 per bag.
Asbestos Sheathing	$6.75 to $8.00 per 100 lbs.

EXTENDED SEASON FOR RADIATORS AND BOILERS

Toronto.

The season for radiators and boilers has also extended well into the late fall period this year, manufacturers and distributors pointing out that a large number of buildings were commenced rather late in the season, and this factor has consequently influenced the current demand. In other quarters, old buildings are reported undergoing re-construction from a heating standpoint. It is expected that trade will remain on a fairly brisk basis for the next few weeks, that is on the basis of present orders. Prices remain steady at the recently revised levels, which follow:

RADIATORS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60.

Discount on 2, 3, 4 and 5 column standard sizes, 55 per cent for water and 56 per cent for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hosptial sizes 47 per cent for water and 48 per cent for steam.

Discounts on 1-column hospital size, water 33%; steam 34%.

Wall radiators—5 ft. $1.15; 6 ft. $1.10; 7 ft. $1.05; 9 ft. $1.05; 12 ft., $1.05. Discount 52 per cent.

BOILERS—

Water:

Round 60 per cent. off list. Square 20 per cent. off list.

Steam:

Round, 25 per cent off list; Square, 15 per cent. off list.

SOIL PIPE QUIETER WITH WINTER'S APPROACH

Toronto.

The big demand for soil pipe and fittings which was apparent with the marked activity in building circles during the past few months has now receded somewhat as the winter season approaches. Conditions are mainly described as on a steady to firm basis, however, with quotations unchanged at the last general revision. Current discounts follow:

SOIL PIPE—	
2 inch	Less 33 1-3%
3 inch	Less 33 1-3%
4 inch	Less 33 1-3%
5 and 6 inch	Less 33 1-3%
8 inch	net
FITTINGS	
2 to 6 inch	Less 45 per cent

SEASONAL ACTIVITY NOTED IN RANGE BOILERS

Toronto.

Increased activity in range boilers is now recorded, general reports of an improved movement in these goods being noted. This condition is attributed to the many new buildings requiring range boilers, while renewal work at this season of the year is demanding attention. Manufacturers describe the undertone to the market as firm, the recent revision in discounts having contributed towards this tendency, combined with the current seasonal demand. Quotations remain unchanged as follows:

RANGE BOILERS—

Size.	List Price.
5-gallon	$13 50
12 to 15 gallon	14 00
18-gallon	15 00
25-gallon	16 50
30-gallon	17 50
35-gallon	20 50
40-gallon	22 75
52-gallon	38 00
66-gallon	60 75
82-gallon	74 00
100-gallon	103 00
120-gallon	117 00
144-gallon	164 00
168-gallon	187 00
192-gallon	210 00

Discounts, Standard weight, 45 per cent.
Extra heavy, 35 per cent.

FAIR ACTIVITY NOTED IN BOILER TUBES

Toronto.

A fair volume of activity is now recorded in boiler tubes. Distributors state that delivery has slowed up somewhat during the past two weeks, shipments from the mills not being quite so prompt. Some efforts to shade prices are still being recorded in certain quarters, it being stated, however, that the local market has considerably improved in this respect. A seasonal call for tubing, especially in smaller sizes, is generally reported for construction and repair purposes. Following are prevailing unchanged quotations:

BOILER TUBES—	Seamless	Lapweld
¾ inch	19 00	....
1 inch	20 00	....
1¼ inch	22 00	....
1½ inch	24 00	....
1¾ inch	24 00	23 00
2 inch	22 00	19 00
2¼ inch	24 00	....
2½ inch	26 00	23 00
3 inch	34 00	27 50
3¼ inch	36 00	33 00
3½ inch	38 00	32 00
4 inch	55 00	40 00

PIPE FITTINGS ON STEADY PRICE BASIS

Toronto.

There is still a fair amount of trading in pipe fittings in evidence, a marked degree of finishing work on new buildings calling for a good supply of these products. Prices have generally remained unchanged, and while a tendency in an upward direction was recently noted, this has now subsided to a steadier basis. The fine weather experienced this fall has enabled construction work to continue longer than has been the case in other seasons, and a fair volume of activity in pipe fittings and kindred lines is generally expected during the ensuing weeks, as interior finishing will then be the rule. Following are prevailing discounts:

PIPE FITTINGS—	Per Cent.
Cast iron fittings	27
Plugs, cast iron	27
Do., solid	27
Do., countersunk	27
Bushings, malleable	30
Do., cast	30
Unions, ¼ in. to 2 in	45
Do., ⅛ in., 2¼ to 4 in.	45
Flanged unions, std.	27
Flanged Fittings	30
Dart unions, blk., ¼ to 2 in.	34
Do., ⅛ in., 2¼ to 4 in.	23
Do., galvd., add to black	30
Nipples, blk., and galvd. ⅛ to 4 in. close and short	55
Do., 4½ in. and larger	45
Do., long, ⅛ in. to 4 in.	60
Do., 4½ in. and larger	50
Do., running thread	35
Couplings, 4 in. and under	25
Do., 4½ in. and larger	5

MALLEABLE FITTINGS—

New piece list, effective June 1, 1922.
Discounts, Class A, less 60 per cent.
Discounts, Class B, less 70 per cent.
Discounts, Class C, less 70 per cent.

LITTLE VARIATION IN MARKET FOR CLOSETS

Toronto.

Conditions in the market for closet combinations, outfits and fixtures are generally the same as previously reported. There is a seasonal volume of trade, many buildings which were erect-

(Continued on page 36)

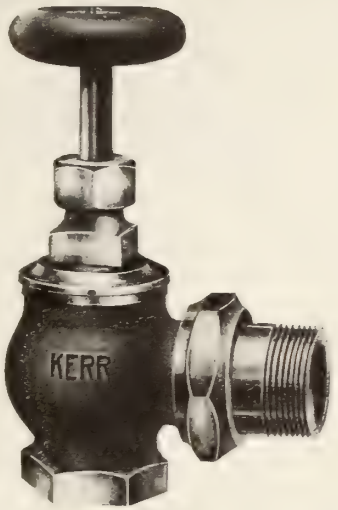
Kerr Steam Radiator Valves

If you want a real high-grade valve made from the best materials, choose one bearing the name "Kerr."

Discs are of special quality and the hand wheels are as good as can be procured.

No possibility of freezing; seats are so located as to prevent the retention of water in the valve around the seat when steam is shut off and condensation takes place.

Make sure of getting satisfaction by buying this valve.



NO. 34.

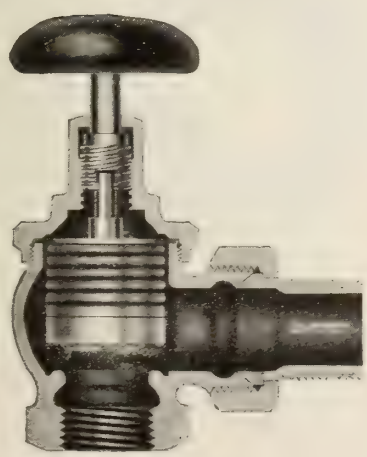
The Kerr Engine Co., Limited

Valve Manufacturers - Walkerville, Canada

The DUNHAM REG. TRADE-MARK HEATING SERVICE

(Made in Canada)

This new Dunham packless radiator valve is an important addition to the valve family. It supplements the usefulness of the Dunham lever handle type.



New Dunham Packless Valve

Controlled by One Turn of Handle

This new Dunham packless radiator valve is constructed with built-up bellows just like the Dunham lever handle type. It is equally effective for top or bottom radiator connection and steam type or hot water type radiators. It can be opened or closed with approximately one turn of the handle.

A series of flexible diaphragms prevents leakage of steam. No packing or stuffing boxes are used. This valve prevents leakage of air into the system —a vital feature in vacuum heating. Steam, water or dirt cannot come in contact with the valve spindle threads. All parts are sturdy, easily accessible and interchangeable.

Complete data on request

C. A. DUNHAM COMPANY, Ltd.

Toronto - Ontario

Manufacturers of a popular line of heating specialties

Halifax, Vancouver, Winnipeg, Ottawa, Montreal, Calgary, London: 18 St. Thomas Street, S.E. 1.

TORONTO MARKETS

(Continued from page 34)

ed during the recent fall period now undergoing the interior finishing period, with a consequent call for these products. Quotations also register very little variation, and while rumors of price shading continue to be apparent, it is pointed out that quantity work has been receiving some consideration in this respect. But for this exception, local distributors claim to be maintaining current levels, while manufacturers observe that the undertone of the primary markets is on a firm basis, owing to raw material trends. Following are nominal unchanged quotations:

CLOSET COMBINATIONS—	Each
Closet, standard outfit, oak	26 00
Do., with post hinge seat	26 20
Do., mahogany Vitro or Pussyfoot with mahogany post hinge seat and cover	28 45
Do., vitreous china, with oak post hinge seat and cover	28 45
Do., vitreous china, with mahogany post hinge seat and cover	28 70
Do., white Vitro or Pussyfoot, with oak post hinge seat and cover	28 45
Do., white Vitro or Pussyfoot with mahogany post hinge, seat and cover.	28 70
Do., enamelled iron tank with oak post hinge seat and cover	28 45
Do., enamelled iron tank with mahogany post hinge seat and cover..	28 70
Additions or reductions to above:	
Add for reverse trap bowl	1 50
Add for syphon jet bowl	7 00
For ⅜ in. valve on supply pipe	1 50
Deduct for supply pipe	0 60
Deduct for floor flange and bolts	0 60
CLOSET BOWLS—	
Washdown bowl with spud	10 60
Reverse trap bowl, with spud	12 10
Syphon jet bowl, with spud	17 00
"Richelieu" bowl	10 50
CLOSET TANKS, low down, Oak, Vitro or Pussyfoot tank, with fittings, less seat	13 20
White Vitro or Pussyfoot tank with fittings, flush elbow and supply	15 65
Vitreous china tank with fittings, flush elbow and supply	18 00
Enamelled iron tank with fittings, flush elbow and supply	18 00
CLOSET SEATS—	
Oak post hinge seat and cover	3 85
Oak wood strip seat and cover	3 50
Mahogany finish post hinge seat and cover	4 05
Oak Richelieu seat and cover	3 50

EASIER PRICE LEVEL ON PLUMBERS OAKUM

Toronto.

A reduction of thirty cents per cwt. has been made in quotations on plumbers' oakum, the local price level now being $6.00 per 100 lbs., or $3.00 per fifty-pound bale. Navy special No. 1, is quoted at $13.00 per cwt.

TIN PLATE TRADE NOW SOMEWHAT EASIER

Toronto.

Trade in tin plate is described as fairly moderate for this season of the year. While the general demand has been easier, prices have held up in most quarters. The report that tin plate prices would be advanced for the first half of next year resulted in securing a little improvement in buying, but no general expectation of higher levels is looked for on domestic markets. It is stated that if iron and steel prices generally were lined up for further increases in the near future, a similar advance in tin plate might be expected. But there is no such trend apparent. The price of coke has dropped, and pig iron quotations are also easier. The markets have been relatively dull, and while no declines are yet in sight, quotations on tin plate are hardly expected to register immediate upward revisions. Current prices follow:

PLATES, CANADA—	Per box
Ordinary, 52 sheets	4 90
Dull, 60 sheets	5 00
Blued and oiled, boxes 52's	5 40
Do., boxes 60's	5 50
WELSH CANADA PLATES—	
Cold polished, 18 x 24, 52's	6 5
Cold Polished, 18 x 24, 60's	6 50
PLATES, COKE TIN—	
IC, 20 x 28, 112 sheets	12 50
IX, 20 x 28, 112 sheets	15 00
IX, 20 x 28, 56 sheets	8 50
PLATES, CHARCOAL TIN—	
IX, 20 x 28, 112 sheets	10 00
IXX 20 x 28, 56 sheets	12 00
PLATES, TERNE—	
IC, 14 x 20, 112 sheets	12 00

SHEET SUPPLIES NOW IN HEAVIER VOLUME

Toronto.

The general situation as regards supplies of galvanized and black sheets is now described as easier, this being one of the principal factors in the recent downward price movement recorded in the last issue of Sanitary Engineer. Two elements contributed towards this development, namely: a falling off in the current demand due to the lateness of the season, and receipt of larger supplies from the British markets. It is stated that present levels are fairly steady and taking all things into consideration, the undertone is moderately firm. Primary sheet markets are also affected, however, by the coming on of the quiet season in the production end of the automobile industry.

GALVANIZED SHEETS—	Premier and Apollo
10¾ oz.	6 65
U. S. 28 base	6 25
U. S. 26 base	5 95
22 and 24	5 80
18 and 20	5 65
16	5 50
12 and 14	5 35
	Queen's Head
28 gauge base	7 15
26	6 75
24	6 45
22	6 30
	Fleur de Lis
28 gauge, base	6 90
26	6 50
24	6 20
22	6 05

An extra 40c. per 100 lbs. is charged for Keystone and Premier bands copper-bearing sheets.

An extra is now charged on galvanized sheets, 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown in 20c. per 100 pounds.

BLUE ANNEALED SHEETS—	
10 gauge, base	4 25
12 gauge	4 30
14 gauge	4 35
16 gauge	4 40
BLACK SHEETS—	
18 20 gauge	5 05
22-24 gauge	5 10
26 gauge	5 15
28 gauge	5 25

A charge of 25c. per 100 lbs. is made for less [illegible] lots. An extra 10c. per 100 lbs. is also charged on sheets 26 in. wide.

COPPER PRODUCTS MOVING IN MODERATE VOLUME

Toronto.

Copper and brass products are moving in fair volume for this season of the year, there having been moderate activity reported in rods, sheets and tubing. Quotations remain on a steady basis, no further revision having been recorded since the general upward change of a few weeks ago. The undertone of primary virgin metal has fluctuated more or less, but these movements are not considered of sufficient extent or duration by manufacturers to be immediately reflected in current price levels on the semi-finished products. Unchanged local quotations follow:

BRASS—	
Sheets base, per lb.	0 23
Rods, base, per lb.	0 22
Tubing, base, per lb.	0 30
COPPER—	
Rods, base, per lb.	0 30
Soft sheets, plain, 1 oz. and heavier, lb.	0 29
Do., plain tinned, 16 oz. and heavier, per lb.	0 36
Do., polished, and tinned, 16 oz. and heavier, lb.	0 41
Tubing,	0 33

TROUGH BUSINESS STILL IN SEASONAL VOLUME

Toronto.

Manufacturers and distributors report that current trade in eavestrough, conductor pipe and kindred lines is keeping up in fair volume for this season of the year. The late activity in these products is generally attributed to the fair weather that has been experienced during recent weeks, a factor which has enabled buildings, especially of the smaller type, to maintain this class of work for a longer period than would otherwise have been considered. Quotations remain unchanged, it being stated that very little revision in this direction is being looked for now that the active season is drawing to a close. Prevailing levels follow:

TROUGH (EAVE)—

O. G. Square Bead—

Per 100 ft.		Per 100 ft.
8 inch	$15 90	15 inch $28 80
10 inch	17 70	18 inch 36 80
12 inch	21 20	inch

O. G. Round and Half Round

8 inch	16 90	15 inch 29 80
10 inch	18 70	18 inch 37 80
12 inch	22 20	

Less 70 per cent.

PIPE (CONDUCTOR)—

Plain, round or corrugated.

	Per 100 ft. in 10 ft. lengths.
2 in., in 10 ft. lengths, list	18 40
3 in., in 10 ft. lengths, list	22 30
4 in., in 10 ft. lengths, list	29 60
5 in., in 10 ft. lengths, list	40 00
6 in., in 10 ft. lengths	49 00

Less 70 per cent.

ELBOWS (CONDUCTOR)—	
2 inch, list	5 25
3 inch, list	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00

Less 60 per cent.

UPWARD TREND NOTED IN COTTON MARKETS

Toronto.

While marked advances have been recorded recently in the raw cotton markets, and prices on practically all manufactured cotton products have been correspondingly advanced, the quotations on cotton wastes have remained unchanged. Distributors point out that the by-products in this class are not affected so promptly by primary market changes as on other lines, and no immediate revisions are looked for. That some action in this direction may ma-

(Continued on page 38)

BEAVER BRAND
Porcelain Enamel Ware
—*Your Guarantee of Quality*—

Beaver Brand Enamelware by its ability to meet the highest demands for service under all conditions, has established itself in the confidence of the public to such an extent that each month witnesses an ever-increasing demand for products of Beaver manufacture.

Amherst Foundry Co., Limited

General Offices and Factory : Amherst, N.S.

Agents :

ONTARIO:
Monarch Brass Mfg. Co.
71 Brown St., Toronto

MANITOBA AND NORTHWEST:
E. B. Plewes
197 Princess St., Winnipeg

Quality The Beaton and Cadwell Mfg Co New Britain Conn *Service*

For a Satisfactory Completion Use a Floor and Ceiling Plate

A No. 10-A Narrow Flange Plate like the one illustrated is just the kind that will suit you. Steel Hinged Plate Flanges ¾" wide.

These plates cover up all places marred by boring, etc.

Highly finished Especially designed for twin connection "Narrow" Made in 1 2 inch to 2 inches inclusive. Has 1 inch flange made in all sizes from ¼ to 6 inches inclusive.

Gem No. 4, Automatic Air Valve.

Made of the best brass obtainable

Equipped with high grade carbon. Guaranteed.

Catalogue sent on request.

The Beaton & Cadwell Mfg. Co.
New Britain, Conn.

EASTERN AGENTS:
J. R. Devereaux & Co., 602 New Birks Bldg., Montreal.

WESTERN AGENTS:
A. E. Hinds & Co., Chamber of Commerce, Winnipeg.

ONTARIO AGENTS.
L. N. Vanstone, 8 Wellington Street E., Toronto, Canada.

John E. T. Tewdall Co., Vancouver, B. C.

FARRFHERN ATMOSPHERIC STEAM HEATING SYSTEMS

Are a simple scientific method of circulation, air elimination, and condensation return.

Following natural laws. this is accomplished with a minimum of mechanical equipment.

There are no traps on radiator returns.

There are no air vents on radiators.

Consequently, the contractor is relieved of needless and expensive responsibilities, which will make his Contracts more profitable.

The Farrfhern is a System that eliminates Troublesome come backs, it will create mutual satisfaction.

Send us the plans for your next prospect and submit a proposal for a Farrfhern System on it.

J. E. FARRELL
Sales Representative 210 Galley Ave., Toronto.

WROUGHT PIPE

Suitable for the approaching period of building activity, road construction, etc. This is a line of great importance in making successful, profitable contracts. Our C. T. Brand of Wrought Pipe has been

THOROUGHLY INSPECTED

by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trademark. We carry this line of reliable pipe in sizes ⅛-in. to 4-in. Black or Galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your Jobber for C. T. Brand Wrought Pipe

Canadian Tube and Steel Products Co., Ltd.
Operating Canadian Tube and Iron Co., Limited
Works at Lachine Canal, Montreal

TORONTO MARKETS

(Continued from page 36)

terialize later is the general feeling, however. Business is described as steady and of seasonal volume. Following are unchanged levels:

COTTON WASTES—

[illegible]	0 18
White, XXX	0 18
XX	0 16
X	0 15
XC	0 14
XXX, extra	0 16
XX, grand	0 15
XLCR	0 14
X, Empire	0 13
X press	0 11½
Colored, No. 1	0 13
No. 17	0 12
No. 1A	0 11
No. 1B	0 10
Fancy	0 13½
Lion	0 12
Standard	0 10½
Popular	0 09
Keen	0 07½

Above lines subject to trade discount for quantity

WROUGHT PIPING ON DISTINCTLY FIRM TREND

Toronto.

Wrought piping remains on a distinctly firm basis, with a tendency to further advanced prices being noted in southern markets. Domestic producers, however, up to the present, have resisted the trend in this direction, it being stated that prevailing market conditions are not conducive to higher levels at this season of the year. The fact that the winter is now approaching is pointed out as a factor to be considered. The active building season has brought a noticeable volume of activity in pipe, especially the smaller sizes, and trade of this class is still recorded as fairly brisk. While producers claim that raw material costs point towards advanced quotations, list No. 56, continues to govern the domestic markets.

FIRMER UNDERTONE IN MOST INGOT METALS

Toronto.

An undercurrent of strength has continued in practically all the ingot metals with the exception of copper. This metal, contrary to general expectations, has weakened slightly in certain quarters, although there is a good demand for semi-finished products such as copper and brass sheets and rods. Tin provides the leading price advance, but the higher levels are bringing a reaction in buying interest.

COPPER.—Consumers of copper are more or less reserved and the general situation has failed to sustain the steady gain recently recorded. While the undertone is easier, however, prices have registered very little change, the domestic quotations of 17½ cents remaining in effect.

TIN.—The London tin market has provided the feature in this metal with trading of an unusually large nature. Prices have consequently risen, due to the strengthened undertone in primary centres. While a slight reaction is now evident in buying interest owing to the higher levels, there is reported to be some danger that the London advance is of a speculative nature. Domestic prices are higher, the new quotation being between 38½ and 39 cents.

LEAD.—This market remains in a strong condition as consumers' stocks are generally considered low and the metal now being called for is reported going into immediate consumption. The London market is also strong, and both primary and domestic price levels remain firm. Local quotations continue unchanged at $7.50.

SPELTER.—The spelter markets continue strong with an advancing tendency. There is a strong sustained buying interest with calls for prompt shipment from stock reflecting the present condition of primary centres. Domestic prices on zinc are again slightly higher, the average level now being $8.50, as compared with the former level of $8.25.

Winnipeg Markets

WINNIPEG, Oct. 30.—Many changes of an upward nature appear in plumbing and steam-fitting commodities. Cast iron fittings have shown an advance, also air tight heaters and enamel ware. Radiators have also advanced. Range boilers are in good demand. There is a steady tone to cotton waste. Standard brass valves show a slight reduction and also boiler tube expanders and melting ladles. A revision has been made in floor and ceiling nickel plates.

FAIR ACTIVITY NOTED IN RANGE BOILERS

Winnipeg.

The demand for range boilers is described as fairly active for this season of the year as building activities are keeping up well. The primary markets have been showing a stronger tendency and no doubt this is reflected on local conditions.

REVISION IN PRICE ON CAST IRON FITTINGS

Winnipeg.

There has been an advance of 5 per cent. on all lines of cast iron fittings such as elbows, tees, crosses, return bands, caps and locknuts. The discount is less 20 per cent. of list price. Bushings are quoted at less 25 per cent. and plugs at less 20 per cent.

SLIGHT ADVANCE ON AIR TIGHT HEATERS

Winnipeg.

There has been a slight advance on air tight and Quebec heaters. Following are new prices.

AIR TIGHT HEATERS—

No. 018, $2.05; No. 18, $2.30; No. 21, $2.56; No. 24, $3.37; No. 28, $5.37.

QUEBEC HEATERS WITHOUT GRATE—

No. 15, $15.25.

QUEBEC HEATERS WITH GRATES—

N. 30, $11.25; No. 40, $13.80; No. 52, $16.35; No. 60, $20.95; No. 2300, $11.25; No. 2400, $13.80; No. 2500, $16.35; No. 2600, $20.95.

STRONGER TONE TO PIPE FITTINGS MARKET

Winnipeg.

Pipe fittings have again developed a strong undertone. Production costs are steadily increasing and manufacturers are of the opinion that prices will advance. There is a fair amount of business for fittings at this season of the year.

KING HOT ROUND WATER BOILERS ADVANCE

Winnipeg.

There has been an advance of 4 per cent. on King hot round water boilers. Sizes 1 to 9½ inch are quoted at less 56 per cent. off list price.

RADIATORS SHOW AN ADVANCE IN PRICE

Winnipeg.

There has been an advance of 10 per cent. registered on steam and water radiators. Radiators 38 inches in height comprising 8 sections are listed at $1 per square foot less 44 per cent.

LOWER QUOTATIONS ON STANDARD BRASS VALVES

Winnipeg.

There has been a reduction on standard brass valves of the horizontal check and drip style. Half inch is quoted at $1.40. Three-quarters of an inch at $1.50 and inch at $1.75.

LOWER PRICES ON BOILER TUBE EXPANDERS

Winnipeg.

There has been a decline in the price of boiler tube expanders. Following quotations are now in effect.

TUBE EXPANDERS—

1½ inch, $4.00; 1¾ inch, $4.00; 2 inch, $4.00; 2¼ inch, $4.75; 2½ inch, $5.75; 3 inch, $7.00; 3½ inch, $9.00.

MELTING LADLES SHOW SLIGHT PRICE DECLINE

Winnipeg.

There has been a slight decline recorded on metal melting ladles. Sizes 3 inch are quoted at $2.75; 4 inch, $3.50 5 inch, $5.50; 6 inch, $6.50.

REVISION IN PRICES ON NICKEL PLATES

Winnipeg.

There is a revision in the price of floor and ceiling nickel plates. New quotations are less 60 per cent. off list price.

WROUGHT IRON NIPPLES SHOW AN ADVANCE

Winnipeg.

There has been an advance of 5 per cent. on wrought iron nipples both close and short. Nipples up to four inch are quoted at less 50 per cent. off list pri and four and a half inch and larger less 40 per cent.

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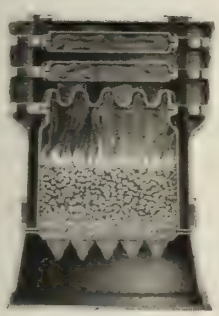

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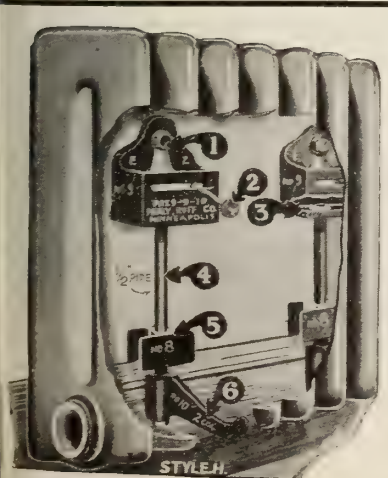

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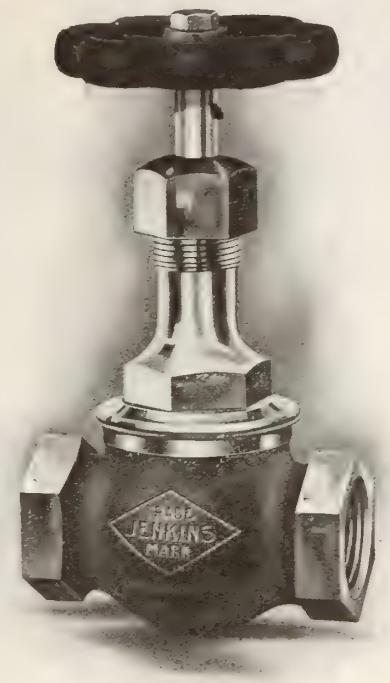

Fig. 106
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Easier to attach
More permanent
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ATTENTION! Contract Shops, Stores, Employers, Clerks, Mechanics, etc.

Our new HOME STUDY course in BUSINESS ADMINISTRATION is now ready for the trade. It teaches you the most modern methods of Business.
Learn to extend your Markets; enlarge your Business; Learn to adjust all the business combinations to the limit. We build on top of your present Ability and give you a business training equal to the best.
We teach you in your own home or office, Clear, Personal, Direct. An Hour a Day will prepare you into a highly specialized Executive. Make ready for the next great prosperous Building wave.

Full information free.

COURSES IN MODERN BUSINESS ADMINISTRATION
COURSES IN SHEET METAL DESIGN AND PATTERN DRAFTING
COURSES IN HEATING AND VENTILATING ENGINEERING

ST. LOUIS TECHNICAL INSTITUTE
4543 Clayton Ave. O. W. Kothe, Prin. St. Louis, Mo.

WOLVERINE SUPPLIES

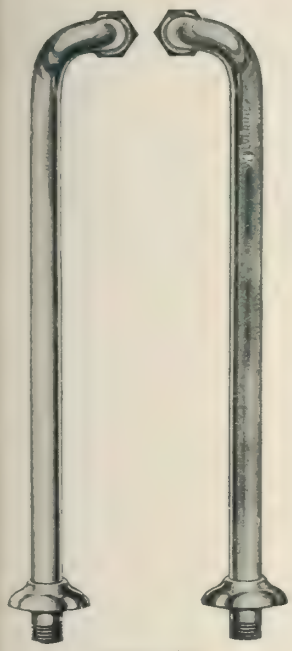


Fig. No. 523

Fig. No. 458

Adjustable
Flexible
Save Time
Save Material
No Leaks
It
Pays to
Specify
And
Insist On
Wolverine
Products

Fig. No. 685R

Fig. No. 683R

WOLVERINE LIMITED

76 Nelson St. Toronto-

Fig. No. 34

Your Metal and Rubber Lines should bear the Name "Wolverine" Time Tested—

Mail or Telephone Your Requirements

Broadcasting Good News From the Home of Wolverine Listen in

Wolverine Syphon Rings—Extra Fine Quality—Will seat perfectly on any valve—old or new—corroded or worn.

Wolverine Sure Seat Tank Balls—Pure gum rubber, chocolate color, pliable bottom with solid one-piece non-catching stem. Best by test.

Wolverine Bibb Washers—For every purpose. Give uniform satisfaction.

It pays to have Wolverine articles on hand for instant use. Order now.

WOLVERINE LIMITED

76 Nelson St. Toronto-

Wolverine For Quality Rubber Lines

Healthfulness

Health and sanitation go hand in hand, and, realizing this, man is to-day literally "building his house round the bathroom."

To-day the householder demands not only adequate bathroom fixtures, but he goes further and, properly, insists that these fixtures be a delight to the eye.

The 1922 New Design Vitro, herewith illustrated, is not only an efficient closet bowl but the beauty of its design is unusual. For these reasons the sales of the New Vitro in the past six months have broken every Canadian record.

Galt Brass Company, Limited

GALT ONTARIO

Every Tank Tested

VITRO NO TROUBLE TANK

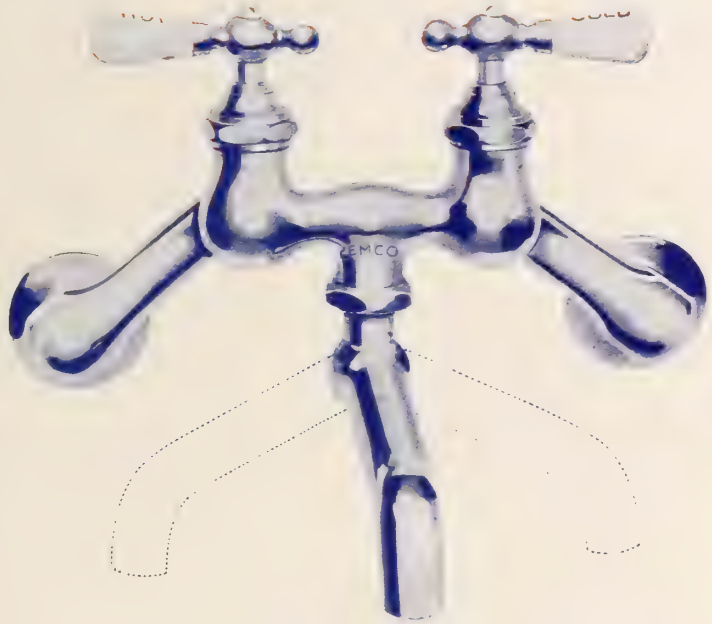
Every Part Perfect

Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XVI. PUBLICATION OFFICE, TORONTO, NOVEMBER 15, 1922 No. 22

New "Emco" *Swing Spout Double Sink Cock*



Hot or Cold Water From the Same Spout

One of the latest additions to the "Emco" line is the Swing Spout Double Sink Cock. As the name indicates, it combines two fixtures in one. It is graceful in design, retaining the beauty of the single fixture. The spout swings freely permitting a flow of both hot and cold water **from the same spout.** Made of high-grade metal and finely finished throughout.

Ask your jobber or write direct to us.

Empire Brass Mfg. Co., Limited

LONDON AND TORONTO, CANADA

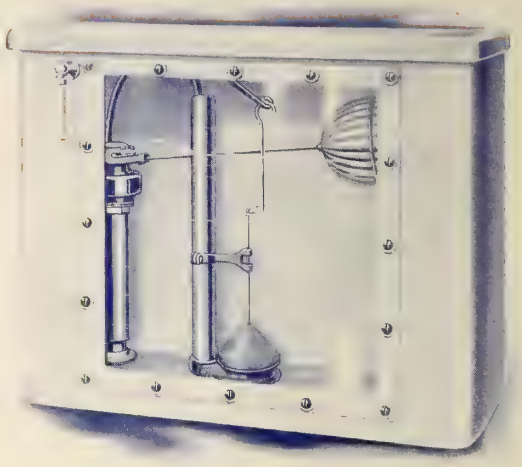
The Sales of

"PUSSYFOOT"

CLOSET TANKS

are breaking all records.

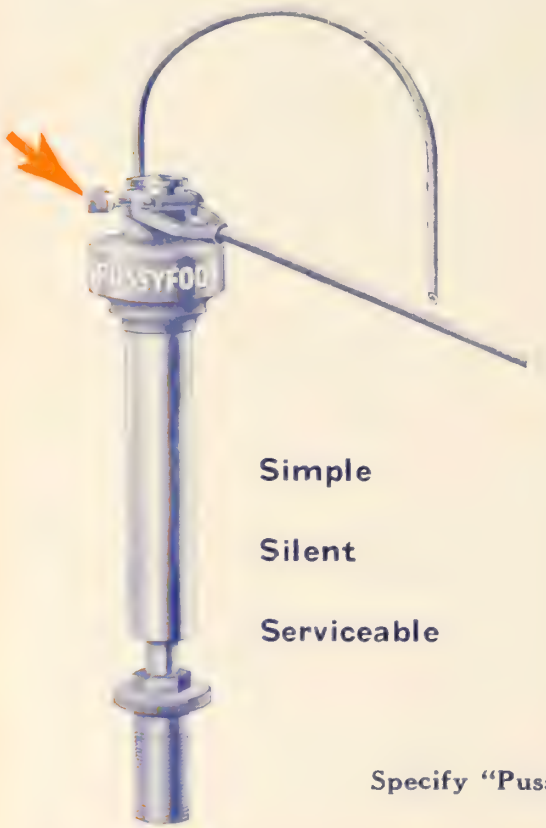
The reason is that the more they are seen and known, the more their value is appreciated.



OUR DEMONSTRATING TANK

with glass front, enables the simple mechanical arrangement to be seen in operation, showing

"Only one bolt"



Simple

Silent

Serviceable

Our New Valve

with large Silence Chamber and only one bolt necessary to make any adjustment.

The silence and rapidity of its action is a revelation, and in addition there is no unnecessary part to get out of order.

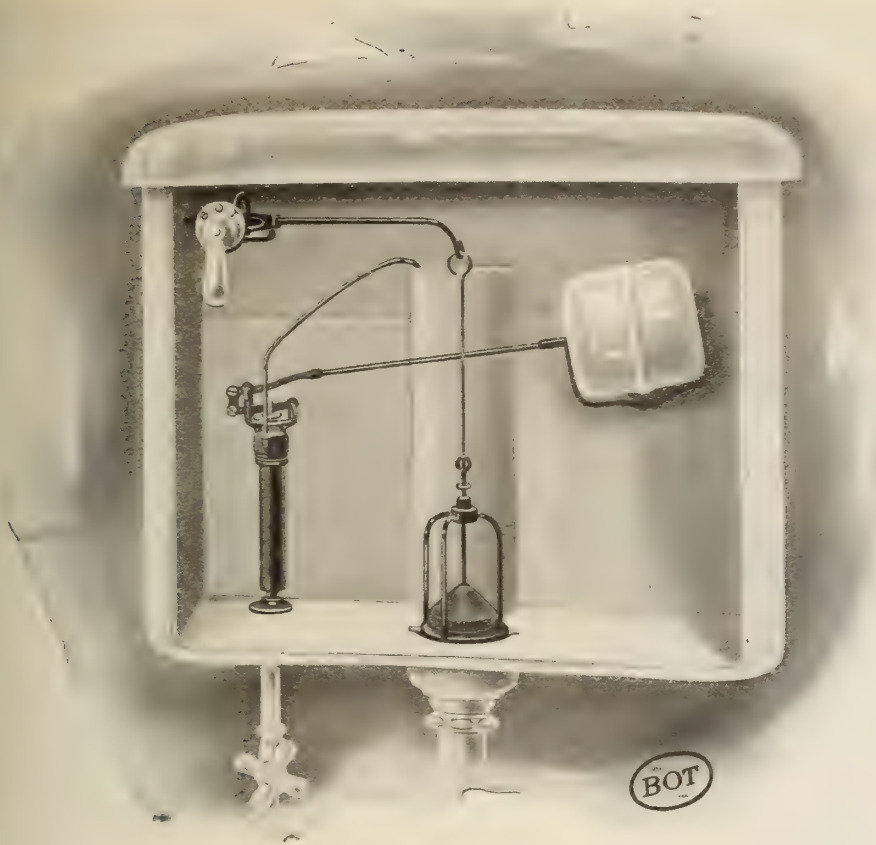
Suitable
Alike
for
Castle or Cottage

Specify "Pussyfoot" to your Jobber and insist on having it.

THE CANADA METAL COMPANY

LIMITED

Montreal Hamilton TORONTO Winnipeg Vancouver



B.O.T.
"BUYIT"
COMBINATION

(Something new and attractive)

Canadian Patent No. 262322

Specification:

"Buyit" Vitreous China heavy Tank with patent Integral Overflow, patent revolving China Float, "B.O.T." Ballcock, patent non-overflow Valve, "B.O.T." Lever, nickel-plated Bend and Nuts, nickel-plated plain Supply Pipe.

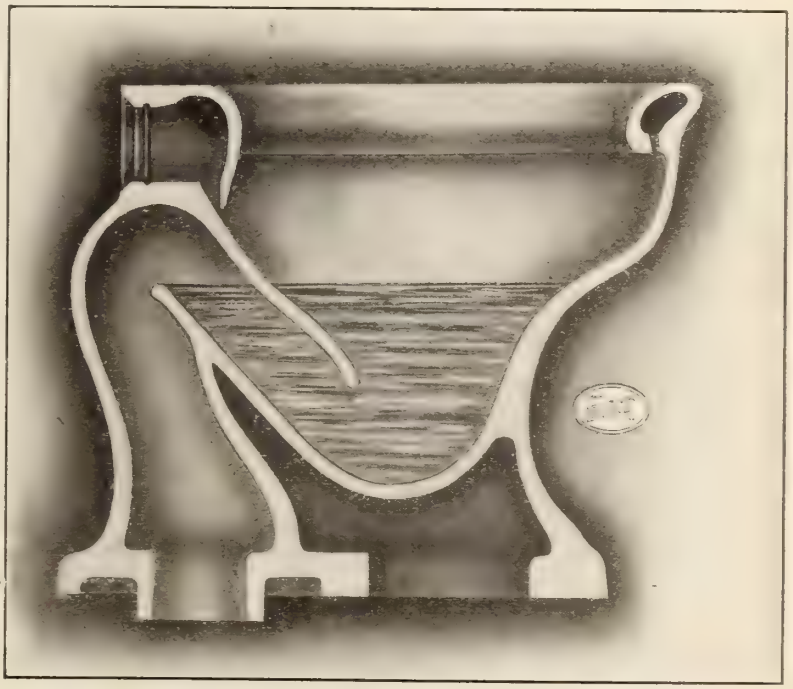
B302 Blanco Seat and Cover with nickel-plated Bar Hinge.

No. 375 "B.O.T." patent Bowl with 2-inch Spud and Floor Flanges.

(Sold only as a Combination)

(Can be furnished with any "B.O.T." Seat).

We invite every Sanitary Engineer in Canada to show interest in our courage in placing on the market something which is an absolute departure in Closet Tank construction by either criticism or installing an outfit. By doing the latter we are prepared to let the combination take care of repeat orders. By doing the first named you give us (what is our just privilege) an opportunity of pointing out our claims for this Combination which cannot be done within the scope of an advertisement.



Yours with efficiency and service and something modern.

Canadian Brass Co., Limited

(Head Office) GALT

(Branch) TORONTO

It Will Pay You To Se

"Glenedge" No. 676-P

Although the cost of Canadian Solid Vitreous Ware is extremely moderate, this fact should not be over-emphasized, as first of all this ware is a quality product and it is only upon a quality basis that any solid permanent business can be built.

Not only is the glazed surface of this ware vitreous —its whole body is vitreous. The entire piece is made from a blend of very finely powdered clays and rocks, moulded with painstaking care and fired under extreme heat.

The result is a finished product combining strength with beauty, the attractive clean white sheen of its time-defying surface retaining its original luster after long years of service—a glaze which will not crack, craze, chip, peel, wear off nor discolor—a ware non-absorbent, sanitary, beautiful and lasting.

CANADIA

Sales handled exclusively through recognized ——jobbers in plumbing supplies——

"Glengate" No. 672-L

"Glenhill" No. 672-X on Bra

anadian Vitreous Lavatories

oint out these advantages to your customers; sell anadian Solid Vitreous Ware not only for closet wls — where, of course, its acid-proof vitrified rdness and substantial weight mean so much — t for closet tanks and lavatories which are made iformly according to the same identical formula the closet bowls.

t only, however, may you build reputation and rive profit from the selling of these fixtures for siden:ial work, but there is a vast field for their e among industrial establishments, club-houses, tels, schools, office buildings, railway stations, spitals, orphanages and public buildings of all ts.

ur profit on Canadian Solid Vitreous Ware is erous and your customers' permanent satisfac- n from its use will prove a cumulative boost to ir reputation for quality service.

OTTERIES

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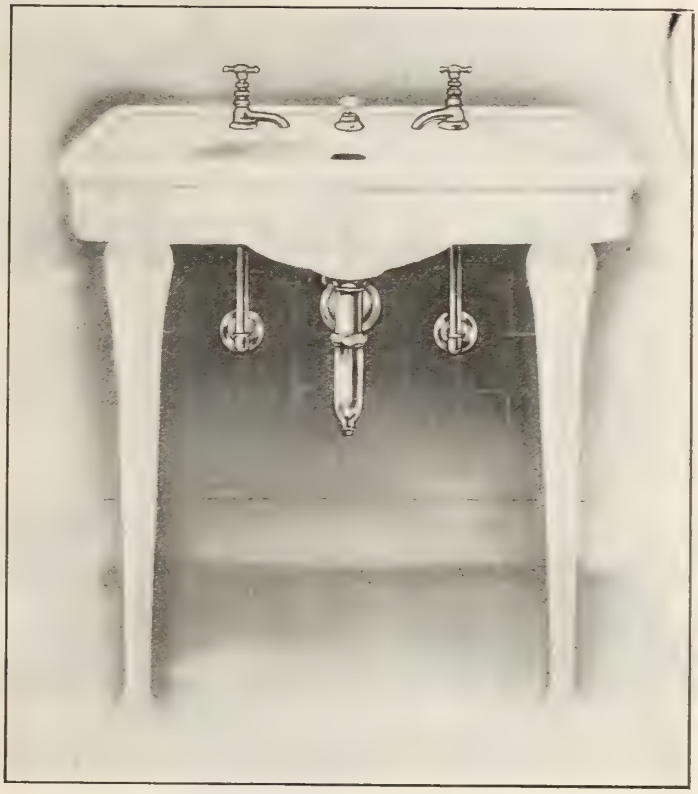
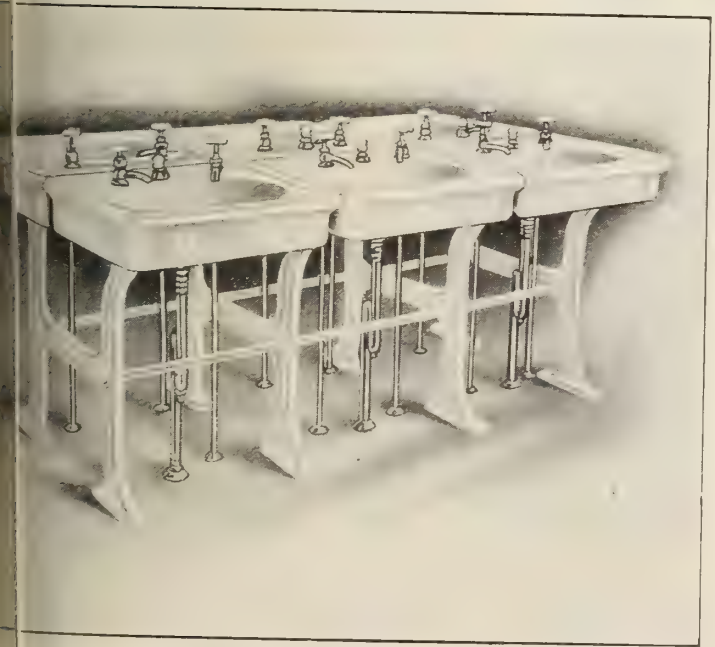
SAINT JOHNS

QUEBEC



"Glenfield" No. 676-T



"Glenhill" No. 672-X - in battery

THE "GLEN" SERIES

In this group, representing our All-Roll-Rim type of Lavatories, we present a range of about twenty distinct designs which covers practically every requirement in residential, institutional or industrial work.

The selection here illustrated of our Oblong designs without back are produced in the following sizes:

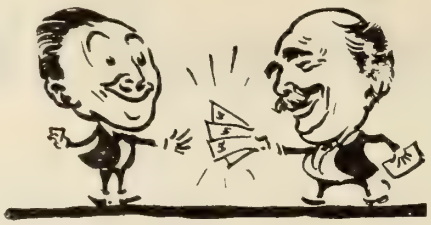
No. 670—18″ x 20″—L. or X.

No. 672—20″ x 24″—P., L. or X.

No. 674—22″ x 28″—P., T., L. or X.

No. 676—24″ x 30″—P., T., L. or X.

P. indicates Pedestal; T. two legs; L. single leg; X. brackets or frame support.



The Classified Columns

of

Sanitary Engineer

Can Bring You Real Money

Have you something to sell—your business—tools—equipment?

Do you want more capital to extend your business?

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Do you require a salesman or other employees?

If you want to buy, sell or swap anything connected with the plumbing business, tell the trade about it through the classified columns of SANITARY ENGINEER.

For 2 cents a word with a minimum charge of $1.00, you can put your message before 90 per cent. of the Sanitary Engineers of Canada.

Make Use of the Classified Columns

BEAVER BRAND
Porcelain Enamel Ware

—*Your Guarantee of Quality*—

Beaver Brand Enamelware by its ability to meet the highest demands for service under all conditions, has established itself in the confidence of the public to such an extent that each month witnesses an ever-increasing demand for products of Beaver manufacture.

Amherst Foundry Co., Limited

General Offices and Factory: Amherst, N.S.

Agents:

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Monarch Brass Mfg. Co.,
71 Brown St., Toronto

MANITOBA AND NORTHWEST:
E. B. Plewes,
197 Princess St., Winnipeg

The Everlasting Veneer Toilet Seat

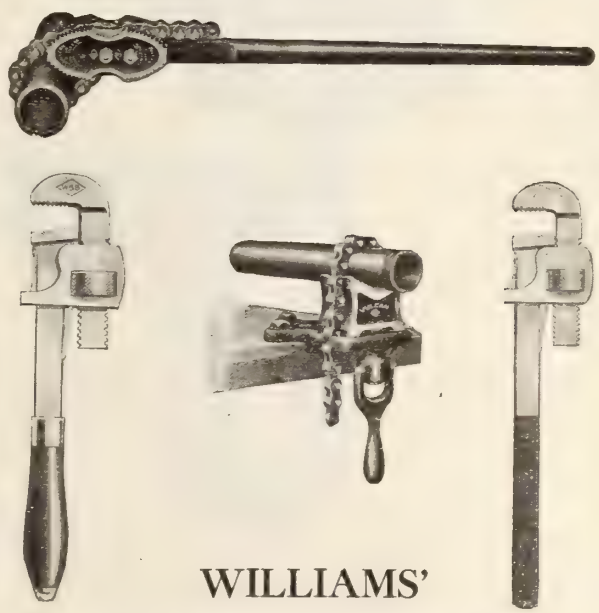
Strong, Clean Hygienic

This reliable, dependable toilet seat is made of 7 and 9-ply, air-seasoned wood veneer, held together by our special wood cement. This cement is proof against heat, cold or dampness. The veneering is distributed according to the strain and wear required of the different parts. The Everlasting Seat will never crack, warp or split.

It is a splendid seat for use in cold, damp basements where closets must be installed. The Everlasting Toilet Seat will meet, and successfully resist, these severe conditions of moisture, changing temperature, etc.

Canadian Veneering Company, Incorporated

Acton Vale Quebec



WILLIAMS'
SUPERIOR PIPE TOOLS

"VULCAN" CHAIN WRENCH and VISE STILLSON WRENCHES

Literature on Request

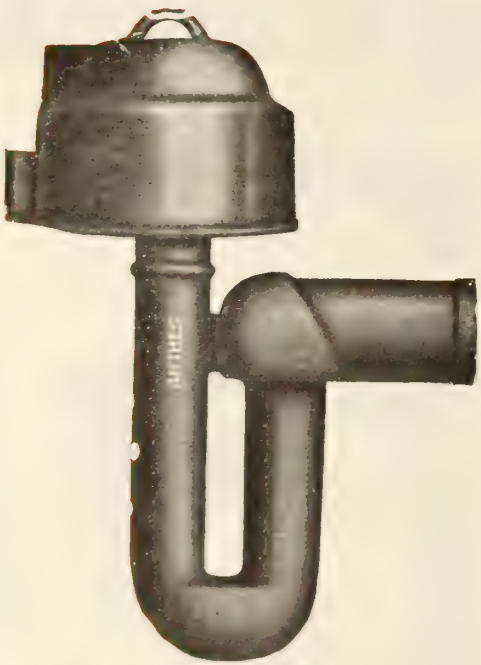
J. H. WILLIAMS & CO., Limited
"The Drop-Forging People"
77 Thorold Road, St. Catharines, Ont.

A Busines

In a little town up north, one live sanitary engineer has made 17 complete installations—water supply, sewage disposal system and necessary plumbing fixtures—during the past year. This in addition to his regular business.

And he doesn't sell pipe and pumps and bathtubs! No! He sells the idea of Good Health and of Comfort—and he says he's going to install a lot more of these disposal systems before the heavy frosts come.

To-day the farmers of this land have more real hard cash in hand than for the past three years. There is still time to sell and install many complete sanitary systems before Christmas.



The Anthes Syphon is the heart of the disposal system.

# of Over $17,000

in a Small Town

The sanitary engineer who takes advantage of this favorable opportunity; who goes out among our prosperous farmers telling them of the comfort and luxury and healthfulness of a complete indoor lavatory equipment, will find that these cool autumn nights help him mightily in his arguments for the desirability of an indoor toilet.

For Permanent Soil Pipe Satisfaction Specify "Anthes"

Anthes Foundry

Limited

Toronto and Winnipeg

Manufacturers of

Cast Iron Soil Pipe and Fittings

THE OLD SWI

Shouts and splashings and the gleam of nake white bodies.

—The boys to-day at the "Old Swimmin' Hol are, at bottom, the same wild, joyous pagans the youths who, in the twilight of history, thre off their furry robes to swim some long fo gotten stream. This is the primitive—the fir bathroom.

MMING HOLE

But summer passes and the streams are frozen, and we, unlike our less finicky ancestors, insist upon baths during the winter; here science slips in and provides us with the facilities for so doing.

"Standard" bathroom fixtures are the farthest step removed from the age-old swimmin' hole.

—Standard fixtures are recognized across a continent as being the one brand of beautiful, sanitary, durable equipment that add much to the comfort, enjoyment and pride of their owner.

The generous, worth-while, persistent advertising of Standard fixtures has brought this about.

Standard goods constantly on display must, inevitably, draw rich returns from this advertising.

Standard Sanitary Mfg. Co.
Limited

General Office and Factory: Royce and Lansdowne Aves., Toronto, Ont.

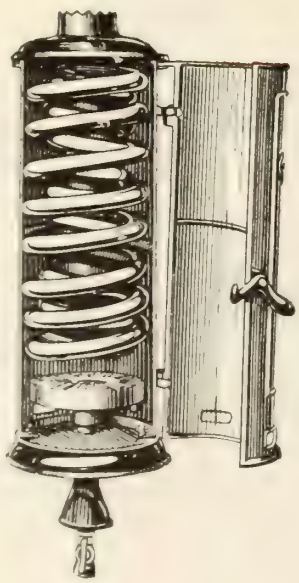
Toronto Store: 55-59 Richmond Street East	Winnipeg Showrooms: 76 Lombard Street	Montreal: New Birks Bldg.
Calgary: 325 Eighth Avenue West	Hamilton Store: 26-28 Jackson Street West	Vancouver: 860 Cambie Street

"Made in Canada"

Install Only—

Gurney

Gas Water Heaters



Here are Six Good Reasons Why

(1) Connections are detachable. Coils *removable* at any time.

(2) *Double water coils* made of the best grade copper tubing.

(3) Valve adjustable to *any* gas pressure.

(4) Deflecting cone keeps heat *on the coils.*

(5) Front half of Cast Iron Housing swings open, making heater *very accessible.*

(6) Drilled burner is placed in proper position for *Perfect Combustion.*

The Gurney Foundry Co. Limited

Cooking and Heating Appliances

TORONTO - MONTREAL - WINNIPEG - VANCOUVER

SANITARY ENGINEER
PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907 PUBLISHED TWICE MONTHLY

Vol. XVI. PUBLICATION OFFICE: TORONTO, NOVEMBER 15, 1922 No. 22

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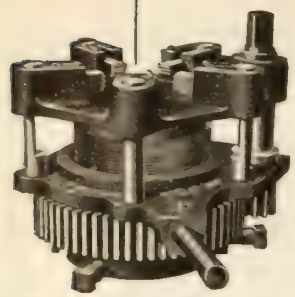
PIPE FITTERS



No. 2 Toledo Geared Threading Tool, capacity 2½" to 4".

Give Canadian workmen employment by using Canadian-made tools.

TOLEDO & JARDINE PIPE THREADING TOOLS

Are not only
Made in Canada

but are the best tools made anywhere.

Cost no more. Do more work. Do better work.

Than any other Pipe Threading Tools.

ASK THE MAN THAT USES THEM

Leading Supply Houses will quote you.

One Man Does The Work Of Two

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Name .....

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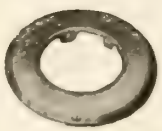
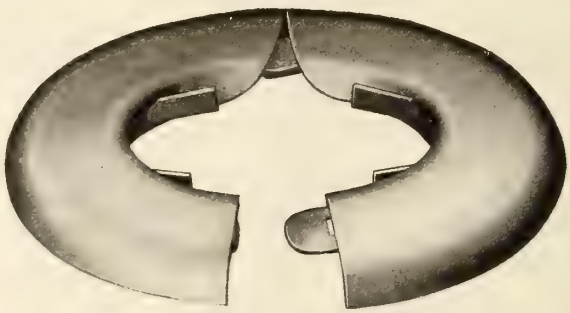
Sanitary Engineer

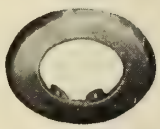
COMPLETE STOCK OF SPECIALTIES



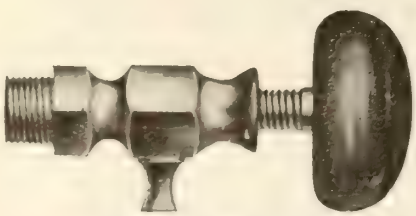
No. 17
Sizes ½ to 2



No. 15
Sizes ¼ to 6"



No. 16
Sizes ½ to 2
with set screw.



No. 211

In addition to the famous B & C items shown, we carry complete stocks of plumbers' rubber goods, ball cock repairs, pipe tool repairs, furnaces, torches and repairs, compression and fuller repairs, in fact all the small items that you need. Prompt service.

No. 4 Automatic

W. H. CUNNINGHAM & HILL, LIMITED

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326 Selby St., Westmount, Montreal, Que. Phone Westmount 1376.

Established 1907

Circulates Throughout Canada

Sanitary Engineer
Plumber and Steamfitter of Canada

Published First and Fifteenth of Month

Vol. XVI. TORONTO, NOVEMBER 15, 1922 No. 22

Plumbing Cheapest Service to Public

But Plumbers Cause Much Misapprehension Because of Billing $2.00 Per Hour for "Labor" When it is "Service"—Great Possibilities Would Keep Plumbers Working for Years—Price Not the Big Factor—Why Plumber is a Better Merchandiser of Gas Appliances Than Gas Companies

Address of WM. J. WOOLEY, National Trade Extension Bureau, before fourth annual convention American Gas Association

"THE real energy that needs to be displayed by the selling force of any gas company or of any institution that sells commercial gas appliances is to sell more plumbing dealers the methods, ways and plans of selling gas appliances. After all, if your local showrooms, if your displays and your selling force can and do sell automatic gas water heaters, room heaters, gas grates and other similar appliances, with 50 such contacts with the public or 100 such contacts with the public, with 50 show rooms, 50 sales rooms, 50 sets of salesmen appealing to the public to buy these appliances, certainly a greater sale is going to be accomplished, and after all you as gas men are interested in one thing. I will agree that many of you have gotten the cart before the horse and have allowed the sale of appliances to overshadow your real object. However, your real object is that of selling gas, to have installed such appliances that will constantly pull a peak load upon your gas plants. And to do that, you must get the proper contact with the public because the public is the source to which you must send out this load of goods that you wish to dispose of.

Prejudice Has Been Built Up

"With the trade knocking the gas appliances as they are to-day and have been for decades past, you cannot overcome the prejudice that is being built up. I daresay if there was a news reporter in front of me to-day he would say: 'There is a thief among thieves, and there is a reason. You and other people have condemned the plumbing dealer, and the plumbing dealer has condemned you. You have both issued propaganda that has been detrimental to both of our interests, with the result that the public viewing that which we have put before them as evidence have concluded that we are thieves among thieves and they are very dubious of both of us. So I say to you that first of all the thing is to banish that prejudice, and that can only be done through proper co-operation and advertising and enlightening the public as to what gas service really means and what plumbing service really means.

"I have heard a great many men in your line when I have discussed this subject with them in various sections of the country who have always and invariably pointed out that a plumbing dealer always wants too much for his work. I always challenge such statements quite naturally because I have a right to challenge such statements. There isn't any service, including gas service, that the public buys as cheap as it does the services of a plumbing dealer. We have been at fault for the criticism that has been put forth for one very good reason quite evident on every bill that you receive. The plumbing dealer for years past has always and invariably had an item on his bills: 'Labor, $1.75 an hour,' or 'Labor, $2.00 per hour.' Labor isn't worth any such amount and everyone realizes it, because labor is a cheap commodity, the cheapest thing in the world to-day. It is viewed by the average person as a commodity that should sell for about 30 to 40 cents an hour because that is the price that is paid invariably for labor—sometimes 50 cents. In the eastern sections the value often runs as high as 60 cents, but in the old days it was 30, 20, and even 15 cents an hour, and when they received a bill at the rate of $1.75 or $1.50 or $2.00, whatever it might have been, for labor, they realized that they had been held up; they knew that they had been stung, and they had.

Are Buying Service

"But they were not buying labor, they were buying service, and there is a vast difference between labor and service. Little did they realize that that charge did not represent the mechanic but all that went with that mechanical service. They didn't realize that it included all of the equipment of that establishment, all of the things that are necessary to render the kind of service that the public wants. They didn't take into account that when a plumbing dealer receives an order over the telephone at the instant when the bell rings he has no way of knowing whether the customer will want a bolt washer or a bathtub, and therefore he must carry the equipment to render the service that the public needs, whether it be a bathtub or a fuller bowl. But in billing his commodity he has himself cheapened it and at the same time branded himself as a thief. I think that is largely true with the gas companies; that people have not understood the service that you were rendering. They were buying something, yes, but what? The average person not knowing the qualities of gas believes that they buy something that turns up in a little blue flame and is gone. They forget the service that it renders because they haven't been sold upon that service. Little do they realize the cost of getting it to them. Little do they realize what gas service really means until that gas service is shut off. It is very fortunate to-day that that service isn't shut off at very frequent intervals and at a very short time at that, but I do believe that it would be a God-send to the gas companies of this country if they would shut off the gas service for one week throughout the country and let the public appreciate something of the service. Then they wouldn't complain so readily about the gas bills.

Plumbers Will Co-operate

"I have come to you to-day more as an appeal to let you know and realize that the plumbing trade in your communities wherever they may be are anxious and willing to co-operate in every way to put across the thing that you are after: that of selling more gas. I don't mean that that is 100%. I

don't want to infer anything of that character—or even 50%, but it is growing, and we need your service and your help to put it across. If that were not true I wouldn't be here, but I realize the force that you men can have upon putting across this very thing that we want to do.

"Perhaps it would be well for me to briefly outline just what work our organization is doing.

"In January we have a 'Better Relationship' campaign, and to properly present that to the public we have prepared a great many different kinds of advertising copy to be used in the newspapers by the local associations of master plumbers throughout the country. This is in reality propaganda that sells the public the idea of what service in this industry really means and something of its cost. We have pictured out the thought of $1.75 an hour and the reasons why, showing the salary of the mechanic at $1.00 per hour and the other elements that enter into it to make it $1.75. We have pointed out to them what bathing really means, and so on down the line in this 'Better Relationship' campaign.

"The second campaign is 'Hot Water for Every Need,' which is a national campaign that we conduct in April.

"The next campaign in which you would be interested would be the 'Bath in Every Home' campaign, which we conduct in May. We follow this with 'A Bath a Day' campaign in June, and there is just one thing I might suggest and that is to increase the amount of water being used per day per person in your calculations. We are fast selling the idea of a bath a day, and 15 gallons of water will not supply that requirement. I believe that we should put that figure high; that we shouldn't attempt to sell automatic gas water heaters that will only fill 15 gallons per day, because people are becoming acquainted with the advantages and features of daily bathing, and as we go on more of it is being done. The number of homes with one bathroom are fast disappearing as daily bathing becomes more frequent. To-day the average modern home has two or more bathrooms, so that that condition must be taken care of. I don't think it is a question of price. I heard some man discuss it here a month ago—relative to selling a No. 20 heater at a cheaper price. I don't think that is your problem. I think the problem is pointing out to the public the kind of service these appliances will render, and price will take care of itself. I am not fearful of the man who would question price. All I want him to realize is the service this appliance will render, and when he has found that it will render that service and he has sold that fact that it will render that service, the price will take care of itself. If that were not true we would all be riding in Ford cars.

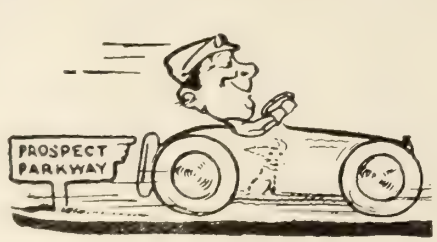
"The next one is the 'Good Health Week' which is being conducted this

SALIENT POINTS IN THIS ARTICLE

1. Propaganda spread by both plumbers and gas companies has given the public the idea that all are thieves among thieves.
2. No service the public buys is as cheap as that of the plumber.
3. Plumbers convey the wrong impression by billing $1.75 to $2.00 per hour for labor when it is for service involving many legitimate charges.
4. The number of houses with more than one bathroom greatly increasing and more bathing being done.
5. Price is not the big question many people think it is. If so we would all be riding in Ford cars.
6. Would take every plumber busy working 28½ years to install a bathroom in homes now unequipped.
7. Would take heating engineers 68½ years to install heating systems in homes now unequipped.
8. There are fewer journeymen plumbers today than ten years ago.
9. There are twelve phonographs in use to every one gas water heater.
10. Plumber is a better merchandiser of gas appliances because he is in direct touch with many prospects who by not using gas in any form are not prospects for the gas company.

had ten years ago when the 1910 census week. That is a national campaign, not only participated in by our industry but by the soap manufacturers, the linen towel manufacturers, etc. We expect to make this a real active campaign throughout the nation in a year or two to come, as the thing gains ground and develops. You as sellers of gas appliances and of gas service unquestionably are interested in the 'Good Health Week' campaign, and there are many angles from which you can attract the public to the service and to the appliance that you are using during that particular week.

"The last is 'Domestic Appliance Week,' which we conduct in December. There isn't any reason in the world why every gas company in the country and every gas appliance manufacturer can't cash in and work with us on that campaign, for we have nothing selfish in this thing except to increase the sale of the material which the men engaged in the plumbing industry have to sell. That that is being accomplished is best proven by a report recently given out by the Enamel Iron Association and is another proof that price does not enter into the question of sale. A few years ago 125,000 built-in bathtubs was an extreme market. To-day it is but a drop in the bucket. A built-in bathtub costs nearly twice as much, and when completely trimmed costs more than double the amount of the tub on foot, and yet they have increased in the sale between three and four hundred thousand at least, perhaps more than that. It only shows that the public will buy an appliance, no matter what the cost might be, if it is properly presented, and we have used every energy to have the plumbing



"If price were the only factor we would all be riding in Ford cars."

dealer during the past two years present to the public the advantages of the built-in tub, with the result that the sales have been very materially increased.

Great Possibilities

"Now, as to the possibilities—there are about twenty-three and one-half million homes in this country, according to the best statistics available. Of that number seventeen and one-half million are without plumbing. Of that number nineteen and one-half million are without heating. So that we have in the plumbing industry a great possibility. It would take every journeyman in the country 28½ years, working full time, to install a bathroom in the present homes that are not so equipped, even though he installed a bathroom every six days, and the Lord knows he wouldn't do that. It would take every steamfitter in the country 68½ years to install heating in these existing buildings, so we have a great field before us even though no new buildings are built. So it comes down to a problem of developing the apprentice, and it is a well-known thought that not only in our industry but in the lathers' industry, the plasterers' and all down the line, the apprentice has been absolutely cut out, so that, too, is a big problem to you men who are manufacturers and who are managers of gas companies. Don't think that you have your own line to look after and that is the only thing you are interested in, because buildings must be built, buildings must be remodeled in order to use your product; and if the labor unions are allowed to run free lance as they have in the past few years in curbing the apprentice in these trades, your business is going to be materially affected before many years pass. So you should interest yourself in that problem as we are doing, and we are encouraging the installation of apprentices in all plumbing shops with the result that so far this year, or since our apprenticeship department was installed last year, we have engaged some 5,000 boys to go into the plumbing shops and learn the trade.

"We have at the present time, according to the government statistics, about 20,000 fewer journeymen than we

was made, so that we are going backwards instead of forwards, and all other trades are doing likewise, and this is a problem that you are materially interested in if you wish the future of your business to develop as you would like to have it.

People Not Sold On Gas Appliances

"You quoted to-day about a million two hundred thousand, as I recall it, water heaters of all kinds in use in homes or for heating water, with about seven million gas stoves and eight million gas meters. That people are not sold on gas as an appliance or from a cooking standpoint is evident in any city that you might go into. You come into contact, don't forget, with the consumer of gas and the man who buys gas appliances, but the plumbing trade is coming into contact with the man who hasn't the convenience and the appliances and service that you sell. If you will make a house-to-house canvass in any of your cities, your eyes will be opened as to the number of people who are really not using gas as a convenience and as a service for cooking but instead have a gas stove, in many instances, that they use only upon certain occasions when the coal range happens to be out.

Records show twelve phonographs to one gas water heater now in use.

"Someone made the remark that you had to sell yourself on gas appliances. I want to say to you that not many years ago, or not many months ago, I installed a water back in the furnace of one of the superintendents of the gas company in our town. He is certainly not sold on gas appliances or he wouldn't put a common ordinary cast iron water back in his furnace. He doesn't appreciate some of the things that you had before you to-day or he would know that his gas wouldn't cost any more than the coal. He doesn't seem to understand that the B. t. u. loss in his furnace through that water back is eating up enough coal to more than offset the difference between what he might pay for gas, for it is to be assumed that he doesn't pay much more than cost. But even if he is paying cost, he figured that he could buy it cheaper, buy the hot water cheaper by putting a water back in his furnace. Believe me, that was good propaganda for us. If we wanted to sell cold water heaters, we could knock any argument that any gas salesman might put up for the use of gas by simply pointing out the fact that the superintendent was using a cast iron water back in his furnace.

"So it is a question of selling yourself upon this question before you attempt to go out and sell the other man, and it is up to you to sell the plumbing dealer in your community on the use of gas appliances in his own home, because after he has used this gas appliance, or whatever it might be, he is going to be better sold on the ideas of service, the kind of service and the cost of

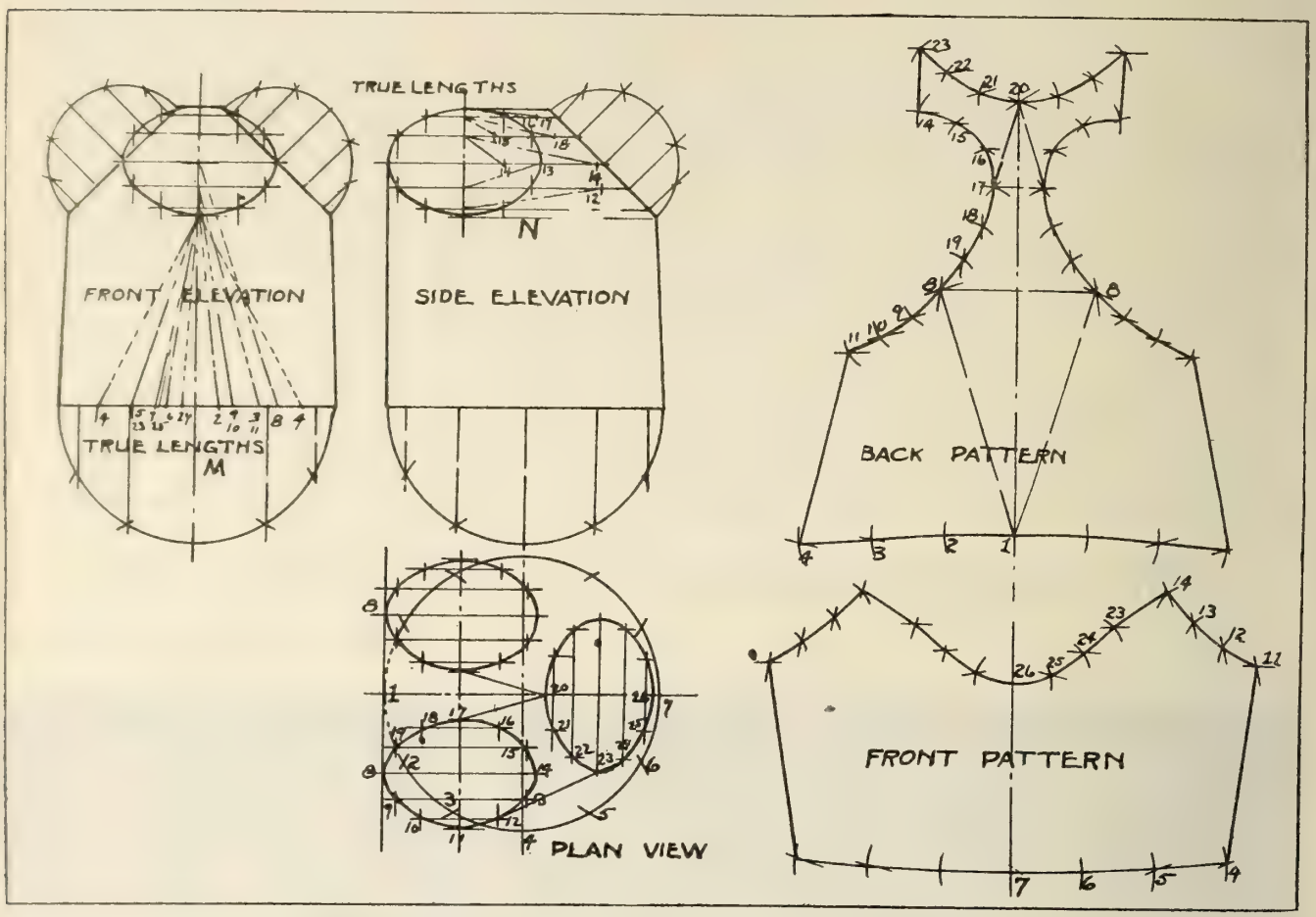
(Continued on page 22)

Plumbing Specialties for Christmas Gifts

This Christmas as in the last two or three years, gifts of utility will be given among friends and relatives. Household furnishings, automobile accessories and all such lines are constantly featured by other trades as Christmas gifts and many sales are made, so many in some cases that manufacturers are thinking of doing up certain quantities of such lines in Christmas boxes or supplying colored paper and holly ribbon to wrap them in. Some plumbers are taking advantage of this business as well as indicated by this display by Ecclestone & Bates, Ltd., Bracebridge, Ont., and an example of the wide range and the attractive layout to be secured with such lines is to be seen in this arrangement. Mirrors, glass and enamelled shelves, towel bars, glass and brush holders, sponge racks, showers, etc., make suitable and practical gifts and are all shown in this display. Streamers and holly leaves and a neat card wishing passers-by the greetings of the season, give it a Christmassy touch.

Three Way Bull Head Branch

Written for Sanitary Engineer by O. W. Kothe, Principal, St. Louis Technical Institute, St. Louis, Missouri



Development of Patterns for Three Way Bull Head Branch.

IN OUR drawing we show a bull head fitting that is straight on the back side and is designed on the order of a stub branch.

Fittings of this kind are often substituted for those of greater taper because the shops feel some saving in time is made and possibly no other method is known to develop the fitting.

Owing to the abrupt method of starting in these collars, in the bull head, a great amount of friction is produced, because the air will strike the solid blunt divisions and rebound. During this process of rebounding it retards the other air in back of it and hence, it is not as satisfactory as it should be.

If the air is to be led from the branches into the large pipe, then this design has the fault of creating pockets, which is also not a good condition because this process enables an expansion of the air thus causing it to drop some of its substance where other air must come along and pick it up again. Hence, a fitting of this kind is more of a problem of development than a practical fitting from an engineering viewpoint.

To lay out such a fitting, first draw the front elevation placing the side openings and the base as shown, giving as narrow a space between the openings as convenient for assembling the collars. The wider the space between the collars the greater the friction that is produced.

Next detail the side elevation developing the ovals by adjusting the lines in the manner shown. After this develop the plan view projecting your lines from your side elevation, or picking them from your ovals of the elevation and setting them in plan thus giving you the shapes shown in plan. After this, develop the true lengths for the main body as at M and for the collar straps as at N.

When this is done the pattern for the back may be laid out as shown above, working from one point to another, thereby making the layout as shown. In the same way the pattern for the front is laid out, working from one point to another, and picking the true lengths from the diagram while the girth spaces are picked from the half sections.

OVER 600,000 CANADIAN FARM HOMES ARE PROSPECTS FOR SANITARY EQUIPMENT AND HAVE THE MONEY TO BUY IT

(Continued from page 23)

have studied it, found it better than their own, and adopted it for home use. Canada has a fewer number of illiterates than any other country in the world with the sole exception of Great Britain.

So much for the possibilities. Canadian farmers have the money. They need the things which the plumbers of this country have to sell, and they are susceptible to the right kind of appeal.

During the winter months, the farmer is more susceptible to the arguments in favor of a well-plumbed, well-heated home than he is even in the spring and summer. It is psychological. In the next issue the writer will endeavor to point out why.

Auto-Suggestion and Other Kinds

Analysis of Various Forces of Suggestion, How They Are Used by Various Business Promoters and How Plumber Can Use Them

Written for Sanitary Engineer by MAJOR L. L. ANTHES, Managing Director Anthes Foundry Co., Toronto

"THE Power of Suggestion," is a phrase that is often heard in these days of intensive selling effort. There are several kinds of suggestion; firstly, mental suggestion which means the working of one mind on another; secondly, sub-conscious suggestion, such as accepting the offer to have a drink before the offer is actually made—the effort being involuntary; and thirdly auto-suggestion. The last mentioned is more popular and is worked to the limit. Its meaning requires some elaboration. A woman makes up her mind that her husband should buy an automobile. She does not come right out and say: "John you should buy an automobile."

Oh no, her methods are more subtle than that. She merely drops occasional hints on the advantages of motoring, comments on neighbors who have invested in cars, and in many other ways suggests the "idea" of "auto" in her husband's mind, until he becomes more or less hypnotized with the idea "auto." This is "auto-suggestion" in its truest form.

Now a man is easily influenced into a "receptive" state of mind when it comes to purchasing an automobile. He is continuously fed with attractive literature and high-class advertising and the pleasure and advantages of "car ownership" appeal to him. But strongest of all influences is the "auto-suggestion" that comes from his wife. He is bound to fall in time.

It is a cruel, cruel thing to say, but it is, alas, nevertheless true, that one of woman's greatest faults is the sin of "envy." She can't help it—it springs from a strain of vanity which originated with the first woman. It is the old, old story of "Keeping up with the Jones's."

Her philosophy is simple: "Mrs. Jones has it therefore I must have it." That's all. As soon as she makes up her mind she wants a thing she worries her husband to death until she gets it.

Shrewd advertisers and business men play up this weakness in the fair sex continuously and with considerable success.

In Paris, the celebrated costumiers dress up "mannequins" in new creations and turn them loose on the boulevards, with Angel's Breath stockings and Seemore skirts. Of course the men stare—and so do the women. The seed of envy and desire is sown by "suggestion" and every woman craves just such a "creation." And behold, a new style comes into vogue!

By "parading good clothes" on living models, the maker of the costumes is doing nothing more or less than suggesting to the women at large that this is what she must buy if she wants to be in style. And what woman does not want to be stylish?

The game is played in many ways, and often to push wares that are of no use to anybody.

But it is an odd fact that it is not what the people "need" that receives the most "boosting," but rather those things that bring "neither profit nor comfort."

Now let us to our own knitting!

Our chief aim is to manufacture and sell plumbing and heating supplies. In the big towns and cities legislation requires that sanitary conveniences be installed to comply with local by-laws. Unfortunately legislation stifles initiative. This means that while the automobile salesman has to "hustle" all the time to sell his cars to the towns and cities, the plumber on the other hand has his "spade work," so to speak, already prepared for him.

But in the country it is different. There is not the same legislation to help the plumber out.

The motor-car salesman, however, puts the same vim and energy into his rural selling campaign that he does in the city, and the results are obvious.

The farmer in the field while he is plowing has his attention attracted constantly by passing motor cars. He often pauses in his work to watch with what speed and ease these modern vehicles roll by, and the germ of "desire" gradually makes itself felt. "Auto suggestion" again!

But the woman in the farm-house who slaves from early morning until late at night amid primitive surroundings, what has she to stimulate her imagination? What is there in the way of "suggestion" to appeal to her? Very little I believe. Her inspiration for better things comes as a rule from the "Mail Order Catalogue." She is too far remote to watch the parade of "mannequins," and unlike her husband her observation is limited to four walls.

But do you not think that she has capacity for the appreciation of better things? Of course she has. And furthermore she is quite as good a subject for "suggestion" as is her sister in the city. There is that form of "envy," which we have already pointed out as common to all women.

It is the woman on the farm who, more than anybody, needs the conveniences so common in the city, and if the farmer's daughter is expected to do as her mother did and marry a farmer, do you think she will be willing to freely continue those conditions which have made her mother an old woman long before her time?

I don't think so.

Well how are we to "turn the trick" of making plumbing popular on the farm?

Here is one way.

Select a district which is fairly populous with good farms. Ascertain what farmer is fairly well-to-do and then make a dead set at him. If the first farmer is a hard nut to crack, don't give up, but "tackle" the next best prospect. Perseverance is sure to be rewarded.

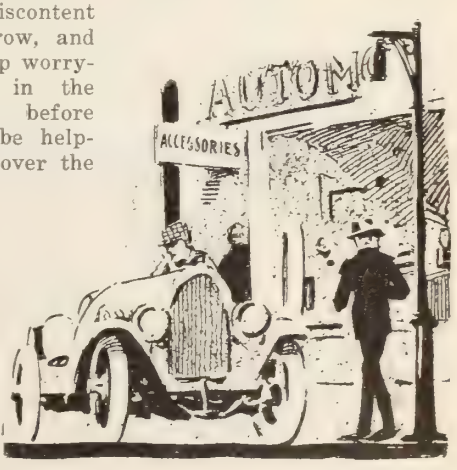
When at last you have landed a prospect, install a job that you can be proud of. This being done your faithful ally "suggestion" will begin to operate. It will be the same old story "Keeping up with the Jones's."

Women Will Hear of It

Women on surrounding farms will hear of the new installation and their curiosity will be stimulated. Friendly visits will be made and the germ of "envy" will begin to operate. Give the seed of discontent a little time to grow, and then get busy. Keep worrying every woman in the neighborhood and before long they will all be helping you to "put it over the old man."

You will have to be persistent but others have landed good business in this way and so can you.

"Now, altogether, put it over!" and don't forget that after you put it over you must follow it up closely and not let the prospect get cold feet.



Auto suggestion in its most definite form.

Rural Sewage Disposal Systems

How to Determine Size of Disposal System for Residence—Water Supply System Bears Some Relationship to Number of Persons and Not Number of Fixtures, or Size of House

Written for Sanitary Engineer by EDWIN NEWSOME, Consulting Sanitary and Heating Engineer

(Continued from last issue)

IT is very doubtful if there is any more interesting department in the business of a sanitary engineer than this, provided of course that one is interested in their work rather than in the mere dollar and cent return. After all it is what we really see with our "mental eyes" that counts more than the material dollar.

The reason for making the above remarks is, because far too many men think that there is something complicated, or expert, in sewage disposal systems. As a matter of fact the greatest factor in solving as well as laying out a sewage system is just plain common sense. A person requires to think, that is all. In other words, the ability to study Mother Nature, then let her do her bit. There is no success to be attained by being arbitrary, and that statement applies to sewage disposal systems just as it does in all walks of life.

To state that an allowance of 50 gallons, or 75 gallons, or any other number of gallons per person would be insufficient without taking into consideration certain factors, conditions, etc., etc., would be arbitrary. So that a little common judgment must be exercised determining the size of a septic tank, and there should also be some consideration given to the question as to whether a larger septic is likely to be required at some not far distant date from the time the system is installed.

Hand Power Water Supply System

Suppose for example that a house is going to be fitted up with a bathroom, and that 4 persons are residing therein. The well has been in use for some time and a hand operated pneumatic water system is to be installed. Water will be used very sparingly because of the fact that every gallon of water used would mean hard work, and it would not require as large a septic tank as would be necessary where town water is available or even electric power used for pumping.

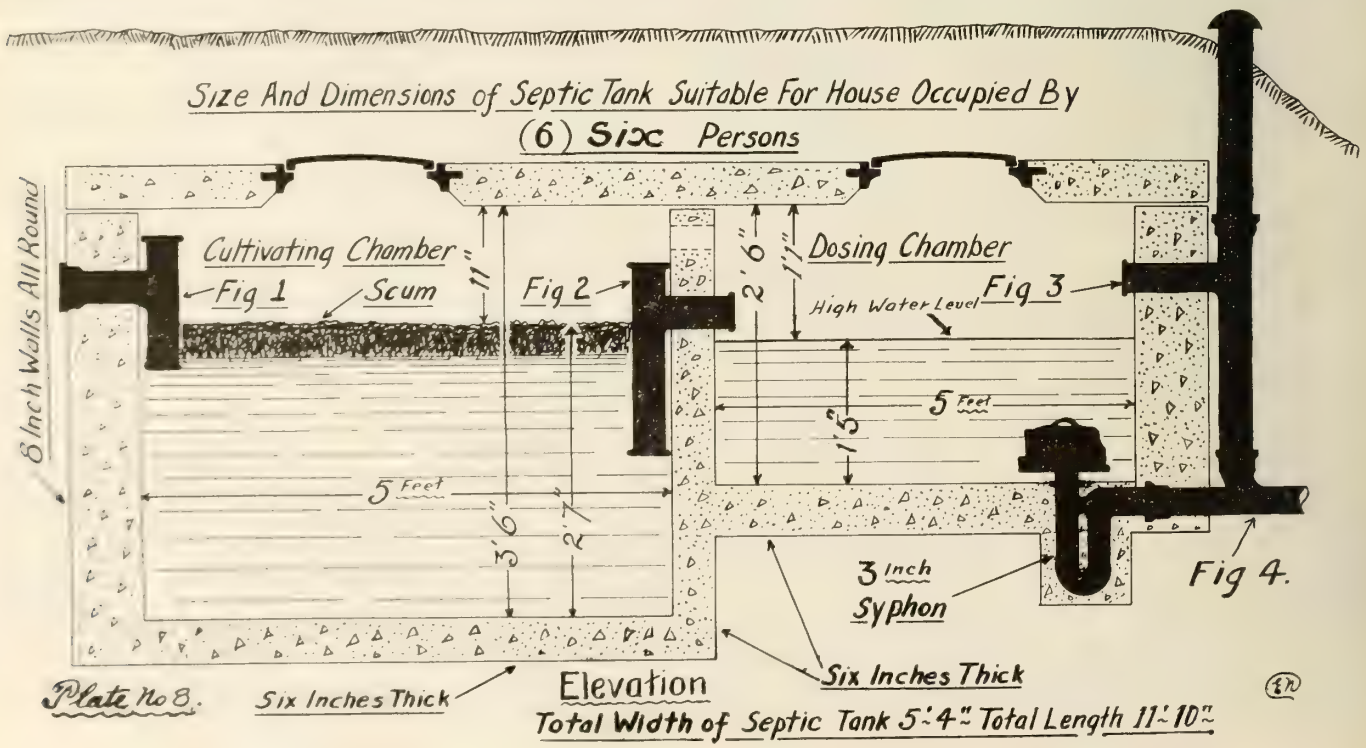
When a hand system is used, an average allowance of water per day would be about 10 to 12½ gallons. So that the size of a septic tank would be very small. But, it is not advisable to build one too small, any more than too large, and where the consumption of water is as low as 48 to 50 gallons per day, the tank could be made larger and partially filled with bricks or stones. These could be removed if at a later date a larger septic tank is required, and under such a condition a few more field tile pipe could be added to the already existing disposal bed. A plan of the pipe layout is advisable for future reference, or addition to disposal bed.

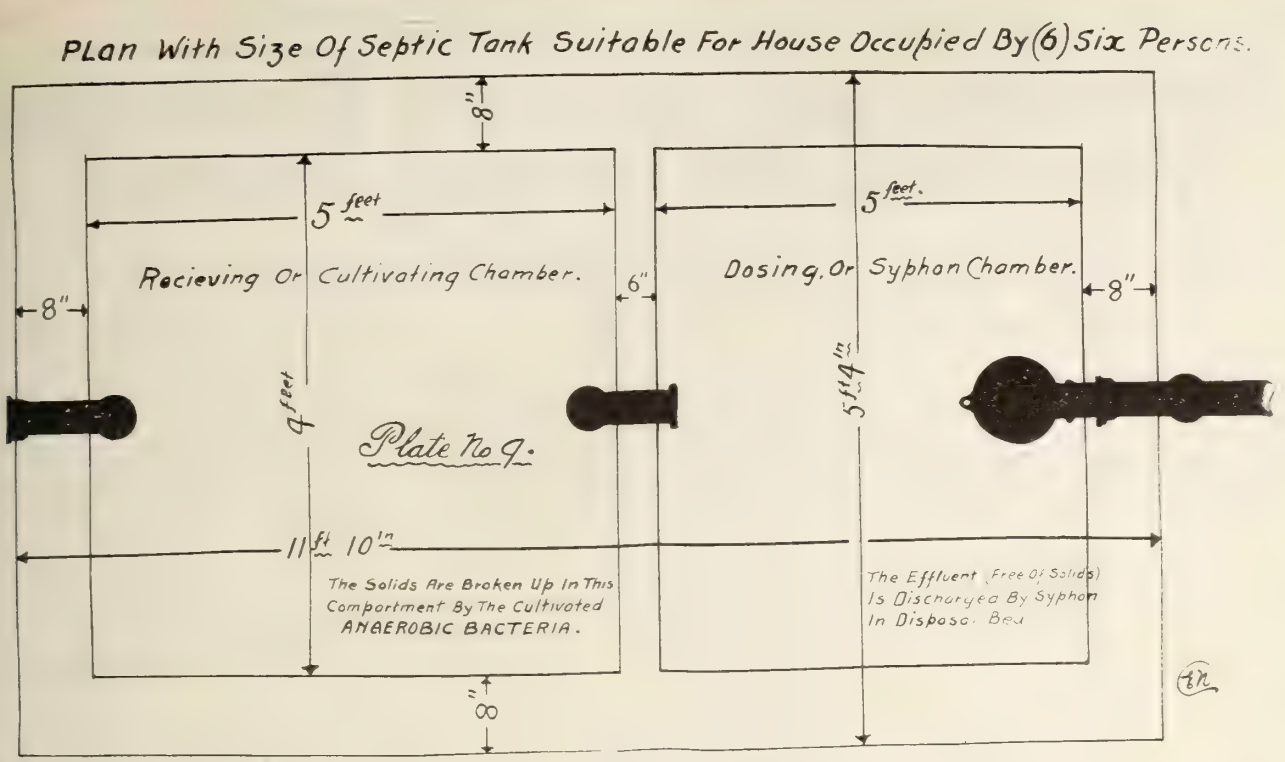
The size of a tank in every case is to be calculated by the amount of water used per day per person in this way:—

Assuming that an allowance of 12½ gallons per person per day is made for four persons, viz:—50 gallons. This means that the volume of sewage flushed by the syphon every twenty-four hours is the determining factor, and that is the space actually taken up in the dosing chamber, between the high water and low water level. This being the basis then, the size of the cultivating chamber can be arrived at by multiplying the 50 gallons by two. Thus the cultivating chamber would have to be large enough from the bottom to the high water mark (which is fixed) and the same rule applies in all cases where a 24-hour discharge is necessary. The writer favors the 24-hour discharge in most cases. But, there are exceptions, which will be dealt with later on in this article.

Gasolene Engine Power

When the water supply system is to be operated by a gasolene engine, a larger supply of water would be available. But




Plan With Size Of Septic Tank Suitable For House Occupied By (6) Six Persons.
8"
5 feet
Recieving Or Cultivating Chamber.
6"
Dosing, Or Syphon Chamber.
5 feet.
8"
8"
4 feet
5 ft 4 in
Plate No 9.
11 ft 10 in
The Solids Are Broken Up In This Compartment By The Cultivated ANAEROBIC BACTERIA.
The Effluent (Free Of Solids) Is Discharged By Syphon In Disposal Bed
8

even so, every time the water supply failed, the engine would have to be "cranked," and when the water got low, it would be used very sparingly.

The more attention required by any system of water supply, the greater care would be taken of the water, and less gallons per day used. It has been found however that where a gasolene engine is used for pumping water, an allowance of twenty (20) to twenty-five (25) gallons per person per day would meet the requirements, and the size of septic tank and disposal field tile provided in accordance with such allowance.

Electrical Pumping System

Where electricity is available and the cost of operation is not too high, a greater water allowance per person per day must be provided for. But here another factor too must now be considered.

Suppose for example that a certain number of the family occupying the house are young folk who have had a college education and, during their stay in a town or city where water was on tap twenty-four hours a day, became accustomed to using water very liberally. These young folk will use more water each day than would the older folk raised and living all their life in the country and such a situation must be provided for, by making a greater allowance for each person.

A fair allowance, estimated on a basis of past experience would be from 27 to 35 gallons per person per day. As a matter of fact an extra 5 gallons per person per day would not be too great to take care of the requirements when city friends of the young folk paid a visit to the farm.

Wind Power Used for Pumping

The writer has often been asked how to arrive at the quantity of water allowance per person per day when wind power is used. This is somewhat of a different problem because another phase has to be taken into one's calculations.

When wind power is used for pumping water with a pneumatic pressure tank, it is a matter of storage that has to be considered. Wind is a reliable power and certainly cheap, the cheapest of all. But on account of the fact that some days the wind is more powerful than on other days, makes it necessary to furnish very large pneumatic storage tanks. And the size of the tank, or tanks, depends too upon not only the wind, but the efficiency of the pump and wind engine combined. With a tank capable of storing say 1,000 gallons, the allowance per person per day could be equal to a gasolene engine driven outfit, namely, about 25 gallons per person. And on that basis the size of the septic tank and sewage disposal bed could be arrived at.

Still Another Factor

Before passing on to the question of the disposal systems for types of buildings other than residences, another matter must be considered, that of the nature of the soil, purpose for which the soil is used, lawn, garden for flowers or for grain field or kitchen garden.

If the ground is very sandy, very little will grow except possibly grass for a lawn, and, if the water supply is procured from a deep well, or artesian well, the sewage may be flushed out of the dosing chamber as often as three times every forty-eight hours. The same if the soil is comparatively light and used for growing kitchen stock, vegetables, etc., or any other produce which made it necessary to either plough or otherwise cultivate the ground. Such sewage will increase the crops wonderfully.

A condition similar to the above would mean that while in no case the daily allowance of water could be reduced, the size of the septic tank could be reduced by one third, as well as the quantity of field tile.

Take for example the house occupied by four persons, supplied by a hand power water system, with a daily allowance of 12½ gals. per person. Such a tank would be large enough for a house occupied by six persons under the conditions referred to, where the soil only permitted of a discharge once every twenty-four (24) hours.

The illustrations accompanying this article describe a septic tank complete with sizes in plan and elevation suitable for residence occupied by six persons. The sizes are based upon an allowance of (27) twenty-seven gallons per person per day. The amount of fluid discharged at each operation of the syphon would be about 25 cubic feet, or 162 gallons Imperial measure and three hundred and twenty-four lineal feet (324) of 4-inch field tile pipe would be required, provided the soil is suitable for one discharge every twenty-four hours and not more than three discharges every (48) forty-eight hours.

(To be continued in next issue.)

TO MODEL RECEIPT TAX ON BRITISH EXPERIENCE

Ottawa.—Officials of the Finance Department who are overseas with Hon. W. S. Fielding are understood to have made a study of the British receipt tax regulation during their stay in London, in order that the Canadian regulations, which are to come into effect at the first of the year, may be made workable.

The tax on receipts has been effective in Britain for many years, whereas Canada is about to try the experiment with the opening of the new year.

Questions and Answers Regarding Plumbing and Heating Practice

Plans for Heating a Garage

Editor, Sanitary Engineer:—

One of my customers has a hot water heating system in his home. He wishes to heat his garage with the same system. The boiler is large enough, if the ratings of the boiler can be relied upon. But there appear to be one or two difficulties in the way. First, the mains from the furnace are about 18 inches higher than the ground level where garage is situated, so that I would have to drop them lower than that to protect them from the frost. The fitter who installed the job in the first place, was told to leave off branches so that a garage could be heated with the same furnace, but I find that the mains are already loaded with radiation to their full capacity. The enclosed is a rough sketch of the job as it is now. Can you suggest a way out, and if it is not pos-

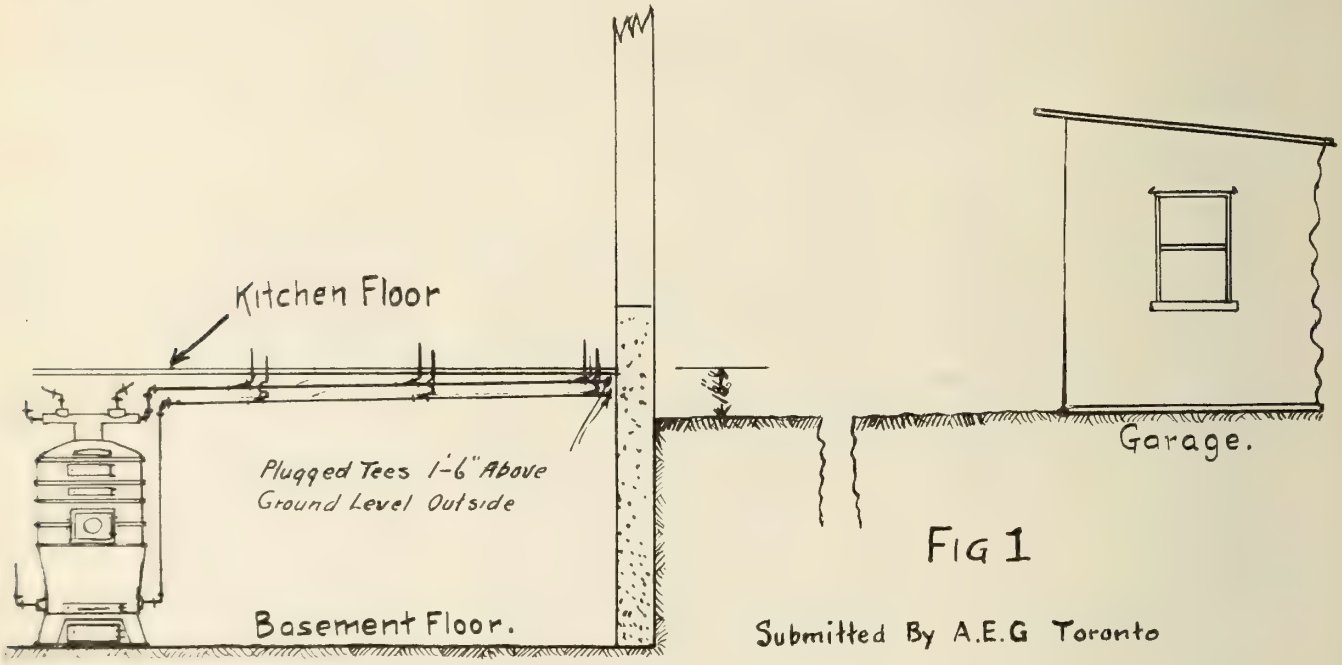


FIG 1

Submitted By A.E.G Toronto

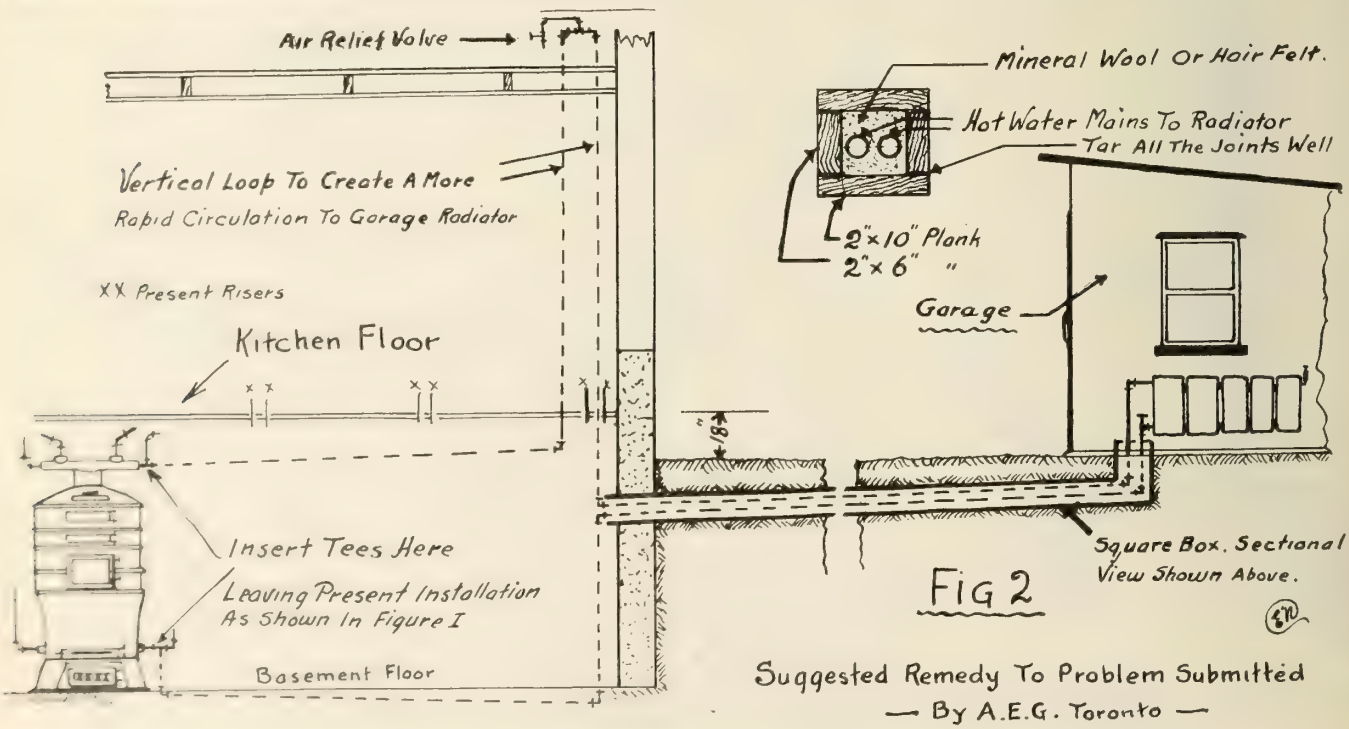

Air Relief Valve
Vertical Loop To Create A More Rapid Circulation To Garage Radiator
XX Present Risers
Kitchen Floor
Insert Tees Here
Leaving Present Installation As Shown In Figure I
Basement Floor
Mineral Wool Or Hair Felt.
Hot Water Mains To Radiator
Tar All The Joints Well
2"×10" Plank
2"×6" "
Garage
Square Box. Sectional View Shown Above.

FIG 2

Suggested Remedy To Problem Submitted — By A.E.G. Toronto —

sible to use the same furnace without incurring too big a cost. Could you suggest the next best thing? My customer thinks I can simply connect two pipes into the plugged Tees shown in my sketch. I cannot see how it would work. These tees were supposed to be put in proper place. Am I right in saying they are not?

A. E. G., Toronto.

The heating of a garage with the same system as is used to heat a residence is very often the cause of much trouble. For the simple reason that the average garage is not as well built as a house, and the heat loss per square foot of wall is much greater, foot for foot, than a house. This condition often means that twice the amount of radiation for space to be heated is necessary.

Then there is the question of protecting the piping from cold. This can be done by following out suggestion shown in one of the accompanying sketches, Fig. 2.

The problem by A. E. G. is somewhat of an average one; many readers of the Sanitary Engineer will have been confronted with the same, with one exception. His customer was told when he bought the house that proper provisions had been made to just connect two pipes at the Tees shown in Fig. 1, and is somewhat annoyed to find that a greater expenditure is necessary.

The boiler is very much larger than is required for the house alone, so that no doubt boiler capacity was really provided.

Fig. 2 shows how this job can be done, by leaving the present piping and layout as it is, except that where the two elbows leave the bailer, two tees should be inserted. If reducers have been used in the feet header and return, they should be taken out and two 2-inch nipples screwed in so that full flow will be available to the two sets of piping.

The size of the piping necessary depends upon the size of the garage and radiator required to heat it. These pipes should be reamed at every cut, and covered with air-cell asbestos pipe covering as well as laid in mineral wool.

The planking used should be soaked in asphaltum or tar, and an extra amount used at the joints so as to make sure that the duct is waterproof. So as to prevent any water leaking into the box from the garage floor, the box should be made to project at least one foot above the floor, and well cemented all round as an extra precaution.

The owner should also be instructed to keep the loop clear of air by opening the air valve often. The length of these loops depends upon the amount of drop required on the feed main to the radiator. But where the loop would end near the ground floor ceiling, it is good practice to carry it just above the first floor as shown, so that the air valve is easy of access.

The most satisfactory job would be to install a separate little jacket heater in the basement, or else fit up a gas water heater for the purpose where gas is available.

House Furnace Efficiency with and Without Domestic Coils

Everything Has Its Cost and Its Value—Only So Much Can be Gotten Out of Fuel, No Matter What That Fuel be—The Domestic Coil Reduces the Heating Capacity of a Furnace

By EDWIN NEWSOME, A.S.S.E.

THERE seems to be a lot of people in this world who are ever on the lookout to get something for nothing. This applies somehow to people who, as a rule, ought to know better.

If I came to any of you gentlemen and said, "Give me ten dollars, and I will show you in a second how it can be turned into $15.00, without, as a matter of fact, ever changing ownership," what would you think?

If I said to you gas men that although the B.t.u. value of gas sold by you was 500, I could get 600 B.t.u.'s out of it, what would you think of such a statement?

Very well, if I sold any of you a hot-water boiler or furnace, say a Number 5 with a heating capacity of 835 square feet of radiation or 2,500 lineal feet of one-inch pipe, and then I told you that you could heat a 30-gallon range boiler from a coil or heater installed, and that heating capacity of the furnace was going to be cut down by 90 to 120 square feet, what would you say?

Gentlemen, these are some of the questions which should be discussed with every house owner or tenant in whose house a furnace is in use.

Some years ago the average heating engineer, steam or hot water fitter, or whatever you may call him, concluded that to fit a coil in a furnace, said coil to be connected to a range boiler, would enable the owner or occupant of the home to procure an almost unlimited supply of hot water for nothing, the average person swallowed hook and line, and today there are hundreds of thousands of coils and domestic heaters so installed in furnaces.

Now Challenge It

A number of boiler and furnace manufacturers, however, began to give the matter some serious study, and concluded that to install such coils meant adding a load to the furnace. Today very few of these boiler manufacturers allow such a theory, or, for that matter, practice, to go unchallenged.

In quite a number of fitters' handbooks, published by boiler manufacturers, the attention of the reader is called to the fact that if a coil or heater of any kind is inserted in the fire box of a furnace, a deduction from the rating must be made equal to 3 square feet of radiation to every gallon of water heated.

Such being the case, if we assume that only thirty gallons of water is used in a day, or that a 30-gallon boiler is connected to a coil containing one square foot of heating surface, then the heat loss would be equal to 90 square feet of radiation.

It is estimated that most residences are of such a size as to require a No. 4 boiler to heat the interior (the rating of such a size of boiler is about 650 square feet), and as a 30-gallon boiler is the average size installed, then the furnace capacity for heating purposes has been reduced by at least 90 square feet or equal to about 15 per cent.

But this is scarcely the whole loss incurred. Let us consider another authority on heating—William Hutton, in his book entitled "Hot Water Supply and Kitchen Boiler Connections," writes as follows:

"Cast iron section suspended from fire box crown, and containing one square foot of surface is equal to 15 square feet of radiation.

"Cast iron sections in contact with fire, 1 square foot equals 50 square feet of radiation.

"Pipe coil, 1 square foot equals 20 square feet.

"Pipe coil, 1 square foot equals 35 square feet."

(Continued on page 27)

Will Assist Citizens to Pay for Plumbing

Peterboro Property Committee Recommends Adoption of By-law Providing for Instalment Payments in Taxes by Property Owner of Cost of Plumbing

TO FURTHER the installation of sanitary plumbing, the Property Committee of the Council recommended to the Council the adoption of the Board of Health's plan whereby householders who are unable to pay for the work in a lump sum shall be assisted by the city. Under this plan the Board may direct certain work to be done, providing the owner is unable to pay for it at once, and the cost shall be paid out of the city's treasury and charged in the taxes against the property in five equal annual payments. The Council's approval must be given to each recommendation from the Board of Health for such work.

The resolution by Ald. Holloway, seconded by Ald. Turner, is as follows:

"That a by-law be passed to provide in cases in which the Local Board of Health recommends that sanitary conveniences be installed in buildings, and is of the opinion that the owner of the premises is unable to pay at once the expenses entailed, that the city instal the plumbing at the expense of the owner upon such recommendation being approved by a resolution of the Council, and that upon such approval the cost, including interest at the rate of six per cent. on the deferred payments, be paid by the owner in equal successive annual payments extending over a period of five years; and that such annual payments be added by the clerk to the collector's roll and collected in like manner as municipal taxes; and also that upon the adoption by the Council of such recommendation the Board of Health be authorized to have the plumbing installed and the City Treasurer be authorized to pay the cost on the order of the Board."

Another resolution by Ald. Holloway, seconded by Ald. Turner, proposes that all persons erecting new houses upon streets on which there is a sewer shall be required to instal sanitary plumbing, consisting at least of a sink and closet, and that a by-law be prepared embodying this regulation.

PLUMBING CHEAPEST SERVICE

(Continued from page 15)

service than he could possibly be in any other way.

How To Interest The Plumber

"I had quite an interesting talk with the superintendent of one of the electrical companies in the south a short time ago, and he told me that they had discontinued the sale of electrical appliances more than a year prior to the time I had this conversation with him. He said that the average meter installation in that city prior to that time was about 800 new services a year. After discontinuing and spending their entire effort in selling electrical dealers in that town the idea of putting in electrical displays and selling electrical appliances, the meter installations had more than tripled the first year, and that since that time they had mounted in such great numbers that they were then seriously thinking of discontinuing the sale of gas appliances because their company owned both the gas and electrical company, and putting their promotion man out in the field selling the dealer, because he reasoned that with 100 points of contact with the public through the plumbing dealers' shop windows, through his journeymen, who by the way are excellent sales mediums, he could sell more gas appliances and consequently more gas than through any other medium. If you could convert or help to convert with the propaganda we are sending every dealer in your community and sell him the idea of a better store, displaying heaters that are not covered with dust, but that are cleaned every day, selling him the idea of attractive show windows with the right kind of advertising to back it up, and then sell him the idea of personal contact with the public through salesmen backed up by sales letters, and through his journeymen who come into contact with the user of the water back in the range, etc., you can more than double the installation of automatic gas water heaters or any other gas heating appliance in your city within one year, because that has been demonstrated most forcibly in some of the cities where they have adopted that plan.

"The homes of this country are blessed with twelve million phonographs and only one million two hundred thousand water heaters. The average cost of the phonograph is about $35 higher than the average cost of water heaters, so that it isn't the price; it's a question of exposing yourself to the public.

Twelve Phonographs to One Gas Meter

"Now, if you would expose yourselves to the public through the 50, 30 or 40 or 100 plumbing shops that you have in your city, you would tear down a prejudice that exists to-day, and you would begin to sell more goods, because more goods are being sold, and more goods can be sold. If twelve million phonographs can be sold, certainly twelve million automatic water heaters and twelve million room heaters and twelve million gas stoves, and so on down the line, can be sold, because they are more essential by far.

"We are willing to assist in every way possible. If you have a dealer in your community who you think ought to be sold on a new location so that he might have the proper facilities in the way of a store and show windows to sell the products that you would like to sell, they will gladly work with you."

CITY MAY ADVANCE MONEY FOR SANITARY PLUMBING

Peterboro'.—To encourage the installation of sanitary plumbing the Property Committee of the Council will recommend to the Council the adoption of the Board of Health's plan whereby householders who are unable to pay for their work in a lump sum shall be assisted by the city.

Under this plan the board may direct certain work to be done, providing the owner is unable to pay for it at once, and the cost shall be paid out of the city's treasury and charged in the taxes against the property in five equal annual payments.

The Council's approval must be given to each recommendation from the Board of Health for such work.

RESEARCH PROGRESS IN HEATING AND VENTILATION

Details of some interesting scientific experiments, connected chiefly with heating and ventilation, were given in Toronto by Professor F. Paul Anderson, director of the Research Laboratory of the American Society of Heating and Ventilating Engineers, to members of the Toronto branch of the society meeting in the Mining Building, under the chairmanship of Mr. M. F. Thomas. People were developing, stated the professor, into a race which lived indoors a great deal and the conditions of the atmosphere in which they lived was a matter of great importance. One of the experiments being conducted at the Pittsburgh laboratory was with the object of discovering the ideals of temperature and humidity. There was a definite scientific relationship between human achievements and conditions of temperature, the general nature of which was indicated by a review of the progress made by certain nations in temperate zones compared with those who lived in more torrid zones. Conditions of greatly varying humidity and temperature were being created in the laboratory and their effect on men was being measured. Medical men were taking a great interest in the experiments and much useful data was being compiled.

Victor Saw Works Inc., incorporation under the law of the State of New York, is authorized to carry on business in Ontario, manufacturings saws.

Over 600,000 Canadian Farm Homes are Prospects for Sanitary Equipment and Have the Money to Buy it

By "KING"

THE Dominion Bureau of Statistics official figures show that there are over 611,000 rural dwellings in Canada without plumbing of any kind installed.

Think of it!

Over 611,000 homes whose occupants are still trudging through swarms of flies in the summer time and icy blasts in the winter time to the old-fashioned outhouse, long since condemned as a disagreeable blot on the landscape, a nuisance and a menace to health.

Over 611,000 homes whose occupants are still relying upon the out-of-doors pump and the old oaken bucket as a source and means of securing and conveying water to the house, (usually the woman's job) and a disagreeable one no matter to whose lot it falls, whether it be on scorching hot summer days or equally cold ones in the winter. The old pump in the backyard where, in most cases, cows, pigs, poultry, and other barn yard beasts and fowl are allowed to run loose, where filth and germ-laden moisture must inevitably seep through the soil to find its way to the lowest level—the well.

Bath a Discomfort

Over 611,000 homes to whose occupants the "Saturday Night Constitutional" is a matter of necessity and a nuisance and discomfort rather than an event to be looked forward to, a luxury and a comfort.

Over 611,000 homes where Mother is of necessity a drudge because she has not the modern and efficient sink and laundry tub to help her in getting through the day's work. Of course, mother doesn't think that the dirty dish water containing little particles of vegetable and animal matter which she put in the back yard after washing the dishes, decays quickly and forms a breeding and feeding place for germ-laden flies, which eventually find their way into the house and park themselves upon any and all the food in sight. Mother doesn't allow them to park very long perhaps—but the germs remain on the food.

611,000 homes whose occupants have a crying need for the services of one of the greatest benefactors of mankind, the plumber. He it is who has shown people in the crowded city how to live and enjoy life free from disease. He it is who enables the city dweller to live 2.6 years longer than his country brother. He it is whose science has enabled the city woman to retain her appearance of youth so much longer than formerly by providing her with equipment that shortened her day's work and put hot water, one of the greatest necessities of the modern home, only as far away as the nearest tap. He it is whose every day working motto of "prevention" is better than cure" is saving thousands of human lives annually. He it is who has saved this country from the ravages of plague and pestilence common in old countries where congested living conditions and a lack of sanitary conveniences together with lack of knowledge on sewage disposal problems has resulted in the terrible holocausts which happened in those countries only a few years ago.

The Plumber's Work

And it is the plumber who must teach the dwellers in Canada's rural districts the full meaning of well-equipped homes. A big responsibility rests with the sanitary engineers of this broad Dominion, a responsibility that cannot be shifted, a responsibility that must be shouldered seriously with the knowledge that upon his efforts in preaching the gospel of good health depends precious lives.

To preach the gospel of good health is to profit. When one realizes that over a billion dollars' worth of plumbing and heating business is to be had in Canada's rural field alone, it may be readily seen that here is a field well worth while cultivating.

Live plumbers are showing Canadian farmers how they can use up-to-date sanitary and heating facilities to good advantage.

Warm air and hot water heating units, water systems, septic tanks, plumbing fixtures, range boilers, kerosene water heaters form part of the equipment that should be in every Canadian home.

Ah, yes, we remark, but can the average farm home afford installations of this sort, and is the average rural dweller of sufficient mental caliber to enable us to impress him with the necessity of these things?

Wealth Per Capita Largest in World

Canada's per capita wealth is $2,500, the largest in the world. Canadian farms produce 27 per cent. of the world's wheat, making this country the second largest grain producer in the world. The quality of Canada's live stock and agriculture products are second to none. This year the total value was $1,120,000,000 over last year.

Roger Babson estimated that due to the exceptionally good general field crop this year that Canadian farmers would have 30 per cent. more to spend during the coming year.

Canadian farm buildings have an assessed value of $20,000,000,000.

Canadian farmers own 60 per cent. of the motor cars in this country. Few are the farms where pianos, phonographs and other expensive luxuries are not found.

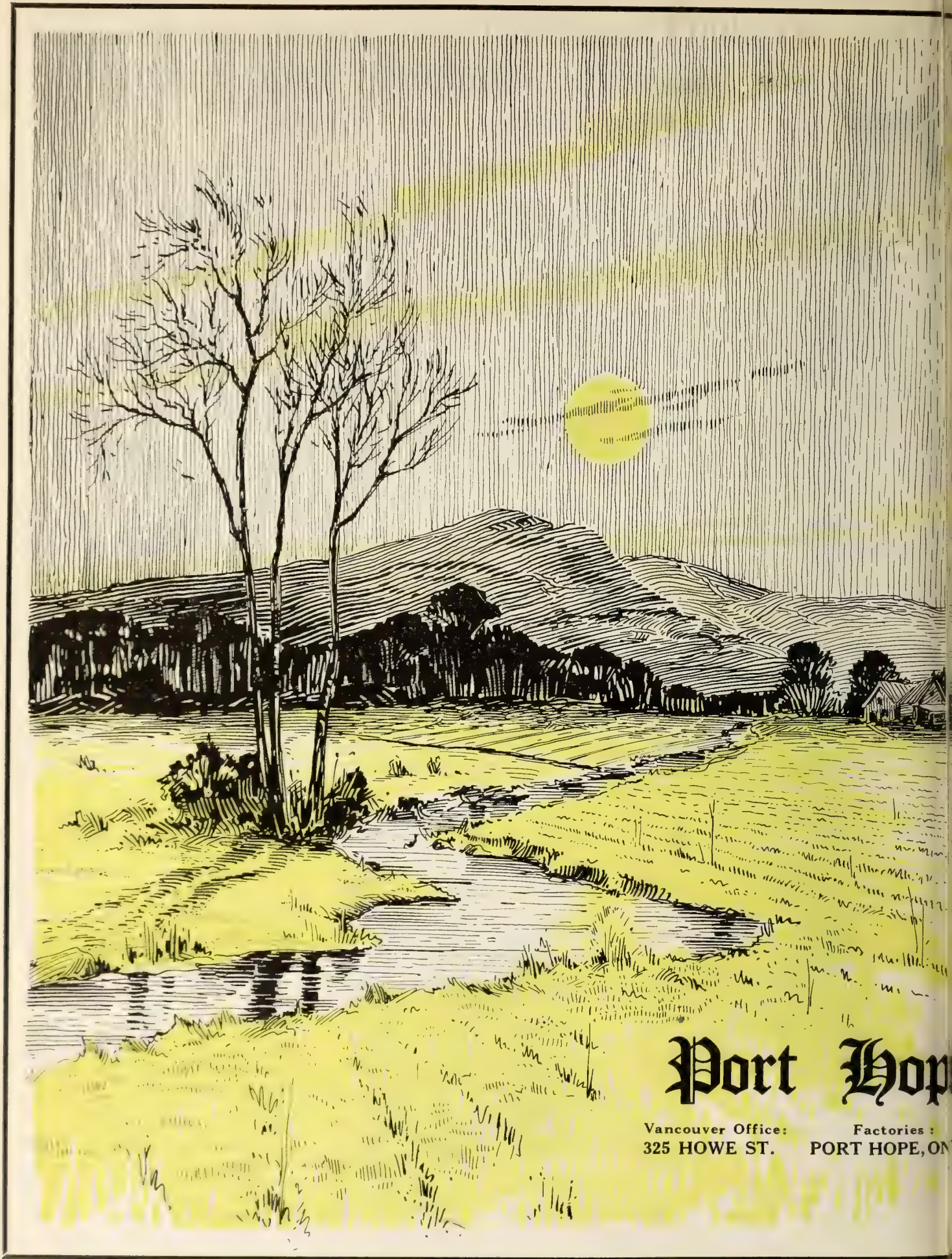
Canadian farmers have money.

They spend money on motor cars, phonographs, pianos, etc., because they were educated to spend it upon those things. They spend it freely and willingly because the manufacturers and dealers of these products convinced them by intensive selling, that the possession of them would make the farm a more liveable place. They sold them.

Population is 54 Per Cent. Rural

Now, will an intelligent appeal fall upon intelligent ears? There is no more broad minded and intelligent person in the world than the average Canadian. By far the greater number of our political leaders and captains of industry are men who were brought up on Canadian farms. Canadian farms are noted for the fact that they are producers of some of the nation's finest manhood. Canada's population is 54 per cent. rural, and enrollments at the colleges and universities show the representation to be over 60 per cent. from rural homes. Canada's educational system is held up by many countries who

(Continued on page 16)


Port Hop
Vancouver Office:
325 HOWE ST.
Factories :
PORT HOPE, ON

And The Crops Are Gathered In

To-night beneath a cold November moon the fields are bare; Until the soft, spring days the farmer leaves them to the sport of wind and weather.

—But this is no neglect; no slothful waste of opportunity. The good soil needs this rest—needs the snow, the rain, the winter wind, to draw therefrom the strength for coming summer bloom.

But in the fields of commerce there are no set seasons of seed-time and of harvest; each day—every day—the keen resourceful merchant plumber sows the seed of future sales; each night brings to him the harvest he deserves.

In Canada, particularly rural Canada, the field open to the aggressive plumbing salesmen is right beyond counting.

In the fall and winter months as in the spring and summer it is "open season"; seed can be sown, harvests gathered and profits put in the bank.

If you want to get some valuable hints on "Winter seeding and Harvesting" send for our sales literature, it is packed full of splendid information.

Sanitary Mfg. Company, Limited

Head Office :
1204 ROYAL BANK BLDG., TORONTO

Winnipeg Office :
405 TRIBUNE BLDG.

Montreal Office :
301 SOUTHAM BLDG.

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Clearing Up Misapprehension

MANY TRUTHS are emphasized in the first article appearing in this issue by Wm. J. Wooley of the National Trade Extension Bureau. Mr. Wooley will be remembered by Canadian craftsmen for the splendid insight he gave into current problems in the industry when addressing a gathering in Toronto in 1920. There is no doubt that much misapprehension exists in the mind of the public today regarding the plumbing and heating operators' work and charges, and much of this misunderstanding is due to the plumbers' methods. It is advisable for plumbers to educate their clients that what they are selling is "service." When this is accomplished many of the difficulties of today will disappear. Analysis shows that the public buys the plumbers' service at less cost than any other. Care must be taken in billing customers, however, to show what constitutes the various charges.

The great opportunity which exists for the sale of plumbing and heating equipment is set forth. Those operators who complain of poor business will be interested in noting that there is enough business installing plumbing equipment in houses now built but unequipped to keep all the plumbers in the country busy for twenty-eight years. The same thing applied to heating would keep heating engineers employed for sixty-eight years. The trend is toward better equipment, as proved by the fact that the production of built-in bathtubs of the expensive variety has increased fourfold in the last few years.

There is significance in the fact that while there is a tendency toward the installation of better equipment and increasing possibilities on every hand, that the number of journeymen plumbers has decreased in the past ten years and little attention is being given to the training of apprentices for the future. The fact that there are twelve phonographs costing an average of $35 in use to one gas water heater at a much less cost, indicates that the distributing machinery in other lines has been much more active than in plumbing. This should not be the case, particularly as a water heater is an article of utility, rather than one of luxury.

The plumber is in position to be the best merchandiser of many commodities such as gas water heaters, because he is in direct touch with prospects. He is in their homes, sees the necessity for the use of certain equipment and he is right there to talk to them. Many prospects for gas appliances are never in touch with the gas companies because they do not use gas in any form. For this reason steps should be taken to clear up misunderstandings which exist and full use be made of the unequalled facilities which live plumbing operators can offer.

Sewers and Sanitation

MOST people would not place the sewers in the category of preventive medicine and yet Paul Gerhard, one of America's leading sanitary engineers, has shown how sewers can be made effective in controlling a flu epidemic and Dr. J. Allan Gray, an Edinburgh surgeon, holds that a direct relation exists between defective drains and the control of diphtheria.

Perhaps it is because it is easier to dig sewers than to change popular habits in personal hygiene that sanitary science is so far ahead of individual practice in health matters. Yet sanitation should be more closely related to individual habit. Everyone likes to buy biscuits "made in sunlit rooms under sanitary conditions." Pride in the day's work rises with the sanitary standards of the work place. The inferiority of the "under dog" may be largely the effect of certain invidious external conditions, easily open to remedy.

But it is not only humane considerations that promote the practice of sanitary science—the public health problems of a whole community may be identified with the pernicious effects of a single industrial process. Water supply from a tile pipe line improperly related to a sewer caused eight hundred and eighty-two cases of typhoid fever in three months in Salem, Ohio. Irritable skin infections are remedied by suitable cleansing of the hands. Tuberculosis is kept from specific occupations by comparatively simple sanitary measures for dust removal and adequate air supply, sanitary prevention in every case being much cheaper than medical cure.

Different sections of the community differ as much in their sanitary codes as individuals do in their sanitary practices. Adequate sanitation requires the service of experts, but it also requires an intelligent public. Engineering projects must always give thought to the needs of to-morrow. Communities are everywhere out-growing their water supplies or their drainage systems. Homes and factories are sometimes built or remodeled on lines that violate all tenets of sanitary science, and ventilating systems required by law are not used after they are installed.

* * * *

Reader Interest is Essential

WHEN John Wanamaker, some years ago, withdrew his advertising from free-distribution mediums, it was mainly because these had no fundamental reader interest. This was the finding after a deep study of the subject. It was the conviction that the man who subscribed for a newspaper or other publication, expected to find advertising in it and valued that advertising as in the light of an investment, as something he had appreciated sufficiently to pay for.

The opposite was the effect of the free-distributed product. Here the receiver had no primary interest in the publication; it appeared in unexpected places, without request, and had somewhat the status of an unexpected guest.

Then, as now, free-circulation mediums were found to recognize no responsibilities toward the problems attending the business or industry, offered no constructive service through their columns, had no means of developing helpful discussion, offered no interchange of news or views, and in short had no interest beyond that contained in their advertising pages and the revenue they represented.

* * * *

DATA given in a recent market report in Sanitary Engineer concerning the anthracite coal situation was given prominence in an editorial in the Port Arthur Chronicle. This was done to give publicity to the true facts of the coal situation and thereby offset excessive profiteering of local coal dealers. It is an example of the far reaching influence of authoritative facts concerning such situations.

HOUSE FURNACE EFFICIENCY

(Continued from page 21)

But this same author goes on to say, "as the above readings are based on a flow of water to the radiators at 170 degrees F., and that is about the highest temperature maintained in hot water supply tanks, it may be calculated that for domestic use:

"1 square foot of cast iron surface in contact with the fire will heat 25 gallons per hour.

"1 square foot of iron coil suspended over the fire will heat 15 gallons per hour.

"1 square foot of iron coil about half in contact with the fire will heat 25 gallons per hour.

"1 square foot of brass pipe coil in close contact with fire will heat 30 to 35 gallons of water per hour."

While the above figures are only approximates, they are based upon actual observation, under every-day conditions, and if such figures are anywhere near the mark it is easy to see that to secure such a large amount of hot water is bound to interfere with as well as cut down the heat rating of a boiler.

The question of heat loss from range boilers, too, must be taken into consideration, and to prove that there is a big loss I will give you one case where my own gas bill averaged 25 per cent. less when I covered a range boiler with a good asbestos covering.

We lived in a house where all heating of water and cooking was done by gas. The only coal used was for the furnace, and, by the way, I had no domestic coil in the furnace. My monthly gas bill, previous to covering the range boiler, averaged $6.25 to $6.50 per month, winter and summer, for a family of nine in the house. After I covered the boiler the gas bill dropped to $4.75 and $5.00. The cost of gas per 1,000 was $1.20.

The loss of radiation from a range boiler, based upon regular heating surface, is approximately 17 square feet for a 30-gallon size, and this amount can be added to, when we consider that the average basement is cooler than any other portion of the house. Most of you know that range boilers are now as a rule placed in the basement.

I am not going to give you any names or addresses where coils or domestic heaters have been taken out of furnaces, but I can assure you, gentlemen, that during ten years' experience with the tools I have proved conclusively that a domestic coil in a fire box does lower the rating of a boiler or furnace.

A Case In Point

About four years ago a real estate agent connected with a trust company called me in to look at the heating systems installed in a number of houses owned by them, which were hot water. These systems were well installed, and I learned that a competitive boiler manufacturer claimed that their furnaces were a certain per cent. more powerful, etc. The houses had only been built about six months, and the tenant complained bitterly about the houses being cold. This was in January.

I measured up the houses, arrived at a heat loss, found that the heating specifications had been carried out to the letter. Each house contained 900 square feet of radiation (hot water). Each house had a 40-gallon range boiler, with a well-known gas water heater fitted to same, a double ring, or sectional domestic coil was also connected to each range boiler. I found also that after the furnaces had been decided upon the glass surface had been increased by adding a sun room to the houses. These had to be heated from the same furnace, and this made the furnaces approximately 15 per cent. too small.

I at once advised that before changing the furnaces it would be well to take out the domestic coils and see what happened. The coils were taken out, and from that time on the furnaces gave splendid service.

As a matter of fact, I could go on citing case after case where the domestic coil has resulted in as high a heat loss as 20 per cent. of a furnace. My opinion is that where a house requires, say, 600 feet of hot water radiation, a 12-inch coil will cut down the furnace rating by at the least 120 square feet. I know of scores of cases where such has been proved.

Not Condemning Coil

I am not, however, condemning the use of a domestic coil in furnaces, but I do object to heating men and those interested in selling coils allowing the public to be deceived.

If the public are told that to install a domestic coil in a furnace means a loss instead of a gain, then I have no fault to find with the domestic coils. And, on the other hand, if where a 600-foot boiler is needed with, say, 500 sq. feet of radiation installed to heat a house, and a 30-gallon boiler is to be heated by, say, a 12-inch cast iron coil, then the customer, or builder, should be told that the furnace is being overloaded.

Just imagine, at this present moment, the cost of a hot water heating system averages $1.75 to $2.00 per square foot of heating surface, including boiler, and say the job requires 500 feet of radiation, and the boiler is a 600-foot one. The total cost of such a job would be around $875.00 to $1,000.00, and we will assume that a domestic coil is installed with a 30-gallon range boiler. This latter cuts down the boiler power by about 120 square feet, or even based upon figures taken from a number of Fitters' Companions, say, 90 square feet is from $157.50 to $180.00.

How foolish it is to install a domestic coil in the face of such figures, and particularly when such a domestic hot water supply is only available during the winter season.

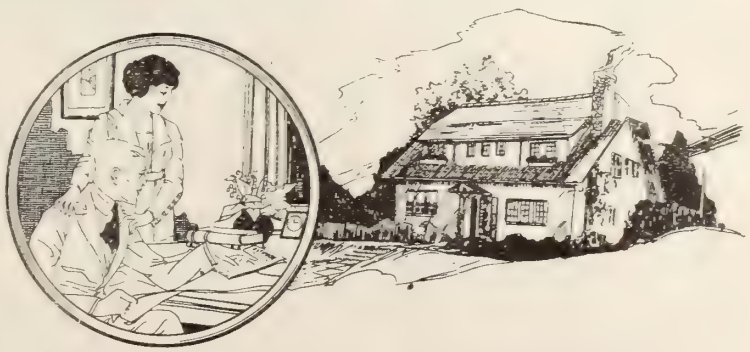
I suppose most of you gentlemen know why coils do reduce the heating capacity of a boiler. The cold water passing through the coil cools the unconsumed gases, and interferes with proper combustion.

Such a coil also prevents the fire from reaching the first section of the heating surface of a furnace.

The same arguments apply where warm air furnaces are in use. Have any of you gentlemen present observed how very dirty a set of hot water coils get when such coils are used for combination warm air and hot water heating systems? You will find that not only do the coils get caked and coated with a pitchy coating, but the warm air radiator and smoke ways or fire travels will be found to be heavily coated with soot, etc., and, other than asbestos, I do not know of a more effective heat insulator than soot. These soots are in reality unconsumed fuel, so that it will be clearly seen that any apparatus installed in the firebox of a furnace which interferes with the proper combustion of fuel is a detriment to any heating system, whether for domestic or commercial heating apparatus.

STILL HAVE SALES OFFICE IN TORONTO

While the head offices of the Imperial Radiator Co. have been moved to St. Catharines, as announced in a recent issue of Sanitary Engineer, a sales office is still being maintained in Toronto at the former headquarters, 228 St. Helens Street, which is in charge of W. R. Blackhall and L. D. McKellar.



Make rural prospects desire modern home conveniences

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

PROBE PLUMBING DEPARTMENT

Despite the fact that the investigation into the shortage in the township treasury is proceeding, York Township Council passed a resolution that His Honor, Judge Denton, be asked to investigate the Plumbing Department, pertaining to permits and inspectors, for the past three years. The resolution was preceded in the morning by Deputy Reeve Jury's statement that he had "the goods, absolutely," he citing instances of defective plumbing, etc., discovered on a recent tour. The township solicitor was instructed to confer with Judge Denton.

COMFORT STATIONS ARE BEING URGED

Necessity for the construction of public conveniences on the Pacific Highway between Vancouver and Blaine will be brought to the attention of the provincial secretary, Hon. J. D. MacLean, according to instructions of the City Council. Ald. R. P. Pettipiece introduced the matter, stating that public comfort stations were provided south of the line. It was decided also to write to the customs department at Ottawa asking that sanitary conveniences be installed at the customs house at Blaine for the convenience of the public.

ACTIVE BUILDING IN LONDON, ONT.

London, Ont.—Building activity continues here with the result that many contractors now have far more work on hand than they can hope to finish before the snow flies. There has been a very active demand for heating and plumbing equipment and various lines of builders' supplies, and a splendid trade has been done also in home requirements.

Work is being started every day on new homes and larger jobs that are being figured on include a new $100,000 school, a new city registry office to cost $60,000, a new apartment house for C. Brennan to cost $25,000 and a new $60,000 garage and auto sales room for the Middlesex Motors. A contract has just been let for a new $50,000 factory for London Shipping Containers Ltd., and work is proceeding on a big new rink for the London Curling Club to replace the building destroyed by fire some weeks ago.

Architects and contractors report an unusually large number of inquiries for homes and the indications are that the spring will see the greatest rush of house building the city has known.

FAKE OFFICIAL O. K's. PLUMBING WORK

Todmorden, Ont.—Some unauthorized person has been putting the official O.K. mark on plumbing work in the Todmorden district, according to Plumbing Inspector James McGowan, of York Township. Mr. McGowan is investigating the matter and says he will prosecute the guilty person or persons if discovered.

Recently a builder who found his plumbing work marked "passed inspection" completed the job and boarded the fixtures around, and was afterwards compelled to take his work apart by the officials of the Plumbing Department.

FAVOR FILTRATION PLANT

Three Rivers.—The waterworks commission, composed of members of the city council and members of the local industries, to inquire into the best ways and means of giving pure water to the population of Three Rivers, has decided in favor of a filtration plant. At its next meeting the advisability of using the subterranean water, as at present, or the water of the St. Maurice River will be considered upon. It is claimed by local doctors the the subterranean water is purer, but the engineers claim that water is not in sufficient quantity and besides it contains too much iron. The filtration of the water from the St. Maurice River would insure the population an adequate supply for ever, they say.

TORONTO TRADES COUNCIL ANGERED BY PLUMBERS LETTER

The sensation of the Toronto Trades and Labor Council Meeting held in the Labor Temple was a letter of vitriolic abuse heaped on the council from the Plumbers' and Steamfitters' Union, Local No. 46. The Trades Council in its turn grew angry at what they termed an abuse of their tolerance, and are taking steps to discipline Local No. 46 for the wild utterances of the letter.

Calling the Toronto Trades Council "a parasitical body composed of business agents, A. F. of L. organizers, job bloodhounds, convention barnacles, delegates who have not worked for years, and landlords," members of the Plumbers and Steamfitters Local No. 46 sent a communication to the council. Some paragraphs are quoted:

"Is Local Union No. 46 organized for the purpose of generating sinecures for parasites or to be preyed upon by a host of job reptiles?"

Some of the recommendations of this communication which was signed by A. McBain and sealed with the seal of the union are:

"No paid officials to be delegates to the council nor delegates who belong to political, fraternal secret societies; no politicians or landlords.

"All delegates must work at their trades.

"No paid officer to hold that soft job for more than two years and never again be eligible.

"All delegates must be fifty years and under, not children of fifty years and upwards.

"A ban on all indirect politicians or boys playing revolution, while they hold a soft job."

TAKE STEPS TOWARD BETTER SANITATION AT RESORTS

"The sanitary conditions obtaining at some of our summer resorts are far from ideal," declared R. H. Murray, director-general of sanitation for the Saskatchewan Bureau of Public Health, who has made a strong denunciation of the manner in which water is handled at a few of the resorts. He stated that two of the most popular of these resorts are suspected of being the source of several cases of typhoid reported during the past summer.

"The Bureau of Public Health, through the Division of Sanitation, will gladly co-operate with all local authorities in advising as to measures for the general sanitary improvement of summer resorts in the province, and it is not too early for plans to be made now for launching a sanitary compaign at all summer resorts next spring.

"The conditions above referred to are unfortunately not confined to summer resort villages. Many of the councils of our small towns appear to be indifferent to their responsiblity in protecting the citizens from communicable disease.

"The wells from which the drinking water is drawn could, every time the pump is used, be polluted by infection from the feet of someone who has come from an outhouse or manure heap. The excess water in most cases drains back into the well through a defective wooden cover."

Leaves Sanitary Field for Relief Work

Harry L. Glendenning Becomes Business Manager of Northern Ontario Fire Relief Committee—Prominent Figure in Wholesale Supply Field—Is Also Ex-Sportsman of Fame

HARRY L. Glendenning, for the past two years Toronto manager for the Standard Sanitary Manufacturing Co., has been appointed business manager of the new Northern Ontario Relief Committee. This organization plans to conduct relief work throughout the fire-swept area of Northern Ontario. It is stated that this new position will require his full time and for the present, therefore, Mr. Glendenning will sever his connection with the sanitary business.

Not only has Mr. Glendenning been a marked figure in the sanitary supply trade—having been engaged in the wholesale phase of the plumbing industry—but he is also a champion ex-sportsman and has had an interesting career in the realms of sport, prior to embarking upon business enterprises.

His business career has been chiefly associated with the sanitary and enamel manufacturing industry. He was with the J. L. Mott Iron Works Co., Chicago branch, and from there came to Canada in 1912. For six years he held the position of sales manager with the James Robertson Co., Toronto, manufacturer of plumbing supplies, and for the past two years has been the local manager for Standard Sanitary Manufacturing Co., Ltd., Toronto.

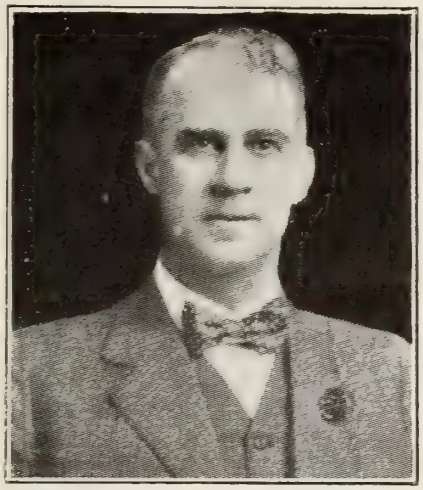
Now, coming to his earlier days, it is noted that should the industry ever desire to organize a champion baseball or football aggregation, then it will be the right time to page him. 'Cos why? Well, listen.

Having strolled through the Pittsburg Public Schools and entered the Western University of Pennsylvania, Harry Glendenning achieved prominence on the senior baseball and football teams. These scholarly halls are now known as the University of Pittsburg. The development of his sporting instinct found also expression in coaching the college football team in the season of 1898, and those who knew him personally agree that it was quite natural he should turn out a winning aggregation.

Played Major League Ball

He played professional baseball with Kansas City in the Western League, and within two seasons had made good and was considered ripe for the highest company. He graduated into the National League, playing with the Chicago "Cubs" for a little more than one year.

However, he admits that old-time ball players were not quite the same in point of training and environment that may be evident in the big leagues today, and it was his father's objections to baseball as a profession which resulted in his leaving the "Cubs" for the more staid fields of commercial enterprise.



H. L. GLENDENNING

It was rugby football in which he excelled while at college, and the training and strategy taught on the playing fields are looked upon as a decided asset in after life.

Mr. Glendenning has been identified with the Rotary Club organization for six years, and is at present chairman of the Fellowship Committee. He is also a prominent Mason and Presbyterian and is greatly interested in boys' work, having for the past two years been actively connected with the Toronto Boy Life Council. He is also Provincial Grand Prior, Toronto District Knights Templer, and Past Preceptor, Geoffrey De Saint Aldamar Preceptory, Knights Templar No. 2. In addition to these organizations he is a member of other Masonic bodies in the city of Toronto; has been for the past three seasons a director of the High Park Lawn Bowling & Curling Club, and is also on the Board of Managers of the High Park Presbyterian Church.

He still keeps in shape by indulgence in sporting events, his chief physical recreation now being lawn and alley bowling. He won the city championship in the five-pin league tournament in 1918 and 1919.

In 1903, he was married to Miss Cornelia Reno, of Salem, Ohio. His boyhood home was at Pittsburg, where he was born in 1875. He is thus 46 years of age.

Before we forget. Having been connected with sanitary enamel products, both as manufacturer and distributor, Mr. Glendenning is an enthusiastic supporter of the "Bath a Day" idea. He pointed out that the Standard Sanitary Mfg. Co. were one of the first concerns in this country to prominently display this slogan in their business literature. Of course, he is not only a believer in the movement, but he is an enthusiastic evangelist and steadfastly practises as well as endorses. He puts a great deal of emphasis behind such typical sayings as "A bath a day keeps the 'blues' away," or "A bath a day makes you feel O. K." In fact, he supports the claim that the exhilarating physical effects place the convert in a position to feel capable of almost any accomplishment.

ONTARIO INCORPORATIONS

Atlas Iron Wire and General Metal Works Ltd., head office Toronto, capital $40,000, to manufacture brass, copper, zinc, iron and other metal products.

Pendell Boiler Co., of Ontario Ltd., head office Toronto, capital $500,000 to manufacture boilers, piping, general heating apparatus, plumbing supplies, etc.

ELMIRA PLUMBERS ARE ENJOYING GREAT RUSH

Elmira, Ont.—With the putting in of sewer connections in all sections of the town the plumbers have had their work cut out to fill all the orders for bathroom fixtures. F. Rudow and Son said that they had all the work they could handle. The same can be said of the other plumbing establishments in town. The class of fixtures being installed were as good as money could buy and it was learned in spite of the rush, deliveries had been good. It was also learned that furnaces, both hot air and hot water, were in great demand and were being installed as fast as the plumbers could do the work.

ENDORSE CENTRAL HEATING FOR WINNIPEG

Winnipeg.—Unqualified endorsation of the proposal to establish a central steam-heating plant in Winnipeg in connection with the proposed steam standby plant for the hydro system was expressed to-day by Alderman J. G. Sullivan, who himself is a civil engineer of long experience.

Alderman Sullivan declared that a central heating plant would prove a boon for commercial and other buildings in the central area of the city. He intimated that at a later period, district plants might be found practicable, which would solve the heating problem for practically all residents of Winnipeg.

"Unfortunately it would be uneconomical to heat the outlying districts from a central plant, because steam cannot be distributed in this way for much more than a mile. But for business houses and other establishments within a radius of a mile a plant would be self-sustaining. Of course, if the city grew, it might prove profitable to establish two or three separate steam-heating plants, but at present I would not advise the city to go further than to erect one plant in connection with a steam standby plant for the hydro," said Ald. Sullivan.

LETTERS TO THE EDITOR

Suggests Co-operative Plan for Developing Rural Plumbing Trade

Editor, Sanitary Engineer.

Ontario's population in 1918 was 2,578,177 of which 995,228 is rural and 1,582,949 is urban.

Number of dwellings something over 500,000.

Area of Ontario 407,262 square miles, larger than the largest prairie province by 155,430 square miles. It is fully three and a third times the size of the British Isles, and is almost twice the size of either France or Germany.

Ontario is divided into two great sections: Southern Ontario, the older settled portion, with an area of 77,000 square miles and Northern Ontario, 330,000 square miles.

Southern Ontario is that portion which lies south of a line starting at Mattawa on the Ottawa River and continuing westward via Lake Nipissing and French River to the top line of Georgian Bay.

Of the total value of field crops produced in Canada annually Ontario produces almost 29 per cent., of cheese well over 50 per cent., of apples 60 per cent., of cherries 60 per cent., of plums 69 per cent., of pears 84 per cent., of peaches 92 per cent., of grapes 98 per cent., and of minerals 45 per cent.

Ontario in general has a very healthy climate, Southern Ontario being the more temperate but having a variety to its seasons so as not to become monotonous whilst still providing at all times an invigorating atmosphere. It has over 43 per cent. of the possible sunshine.

Southern Ontario is the most peopled, the best developed, and the richest province in the Dominion of Canada.

There are 175,000 farms whose value with buildings, implements, and live stock is fully $1,700,000,000. In 1919 the value of her field crops was $373,507,000.

Visitors from other countries bear witness to the truth of these figures. They acclaim the good looking soil, the healthy crops, and the clean buildings which betoken a prosperous contented community. Even with them this province stands as well as, or better than, the selected spots of their own country.

These facts of the province of Ontario are presented, not because I wish to slight the other provinces of the Dominion—a Dominion whose resources are greater than that of any other country in the world, but because, as Ontario has shown the way, being an older province, many times before it might show the way in the matter of selling the urban population of this country on "Sanitation."

The Opportunity for Plumbers

I want to awaken, in this article, the manufacturers of plumbing equipment in Ontario to the vast possibilities of rural business right at their own doors—Southern Ontario, the most peopled, the best developed, and the richest province in the Dominion of Canada.

Those manufacturers who think they have to reach out to new territory or foreign fields will find right at home an almost virgin field for sanitary equipment, and who will say that the home field is not the most loyal and the most profitable field [illegible]?

The American business man, with not as rich a virgin field, has by his promotion developed his field and then lauded its wonders so that outsiders are prone to think it better than anywhere else. As Canadian manufacturers you should be promoting your own country for Canadians so that the country will be equipped to take care of the expansion which this century must bring to Canada.

Whilst wanting to create optimism in the future possibilities of this business, yet I want to be conservative in my figures because, even then, I think those possibilities are large enough to warrant a drastic publicity campaign for sanitation in the rural communities.

There are, we said earlier on in this article, 175,000 farms in Southern Ontario.

Let us allow 15 per cent. as already having plumbing (a high figure) and let us allow 40 per cent. as being unable to afford it, and 35 per cent. who will not become sold at the present. This leaves 10 per cent. as our first objective of 17,500 farms.

Now as $1,000 roughly represents the value to the consumer of the installation which this industry can supply the farm in water supply, plumbing fixtures and sewerage disposal it might be fair to multiply 17,500 farms by the $1,000 and show a seventeen and a half million dollar volume of business ($17,500,000.00).

Would you manufacturers, and you plumbers, like to be a party, in a co-operative way, to obtaining this amount of business at a cost of one per cent. more for selling expense than you are now giving to a volume of business which is seventeen and a half million less? Yes, but you manufacturers say that that one per cent. means expending $175,000 on a theory, or a vaporized pipe dream, from which the actual results might not even total to the expenditure let alone become a multiple of it.

All right, let us assume that. Let us say that you, on the one hand, cannot see anything to that $175,000 expenditure. And let us say, too, that we, on the other hand, ask you for as strong a theory, or even better, proof, that this business cannot be obtained, as to why the farmer cannot be as well, if not better, sold on the idea of sanitation as he has been on automobiles, phonographs, sewing machines, etc.

Or might we not compromise on the proposition by spending a limited amount of money in a given territory on a carefully planned and executed basis so as to prove either, that the farmer can be sold on sanitation, needs it and will adopt it, in which case the selling can be opened out in a larger way, or else, that the proposition of selling sanitation to the farmer is not a feasible or sound business one, in which case we can all save our money and our energy for plans which are workable.

Are you willing to put your twenty-five or your fifty dollars into finding out these things—if the field is actually there; if, being there, it can be sold; and if, being there and being able to be sold, it can be done on a profitable business basis?

When a man gives me a rigmarole about investing in this or that, pushes the subscription form over to me in a patronizing sort of way, says "sign on the dotted line" and "Will we make it $500 or a $1,000 for a starter?" I usually wonder which would be the bigger fool—he for trying to ram that story down my throat, or me for failing for it. In any case it is spending good money for a little smooth talk.

I can, therefore, conceive of manufacturers in this business having the same thoughts about large subscriptions to indefinite plans.

Definite Plan Established

But in this case there is a definite plan established for the selling of sanitation to the farmers wherein co-workers have been induced to gauge their remuneration by the success of the plan, and wherein the co-operative feature of a sum of money from each and every manufacturer interested in the sale of sanitation to the farmer would procure, at a cheaper cost than it would be for the individual manufacturer, the necessary data for future work with the necessary knowledge for the broadening of the campaign, to the best possible advantage, granted of course that the first try-out proves itself.

The writer would be glad to see some concerted action taken in a small way as a stepping stone. I want your views on the proposition, but I will not feel bad if, in place of writing to me, you express yourself to the editor of Sanitary Engineer who will, I am sure, be pleased to publish all such correspondence. If, however, the editor or myself do not hear from you I will take it that you are not a reader of the paper or else you do not see enough of it to even give it an argument.

Some contend that the complex knowledge needed for the installation of plumbing places it in the class of a profession and perhaps, as professional men, for that reason, we are not profuse in our advertising or general publicity, feeling that a professional man is one of retired disposition whose thoughts are usually in deep professional study. But after all it is the knowledge of the installation that alone can be proclaimed as a profession and the plumbing fixtures and the water systems are a merchandising proposition and as such require merchandising efforts such as publicity and improved selling methods to make for volume. When the time comes that sanitation is province wide compulsory and the law compels us to have and use sanitary equipment the same as the law compels us to be vaccinated, then perhaps merchandising our goods will not be so essential, but, as matters stand now, we must sell the product of our industry, or else the spending money of the people will have entered other industries to their upbuilding and our retrogression. Your comments, please. They will be treated as you request them to be.

K. B. ALLISON,

Toronto.

Trade Enquiries

Names and addresses of enquiries can be obtained only by those interested in such lines upon application to Department of Trade and Commerce, Ottawa, Canada. Please quote reference number when requiring addresses.

4818. **Copper.**—A Swedish firm wish to represent Canadian firm for the sale of copper wire, all sizes, and raw copper in bars.

4820. **Copper.**—A firm of metal merchants in Stockholm desire to import copper ingots and sheets, 3 by 4 feet, 4 by 6 feet, all regular gauges.

4821. **Copper, Brass, etc.**—Sheets, rods, tubes and wire are required by a firm in Norway. They also require lead sheets and pipes, and aluminium sheets, rods, wire and tubes.

4822. **Copper**—Copper in ore form, in bulk, is required by a firm in Copenhagen.

4823. **Metals.**—A Swedish firm desire to import copper and brass sheets, tubes and wires.

4824. **Aluminium.**—Aluminium sheets cut to special sizes, 8 mm. to 4 mm., are imported by a firm in Copenhagen.

"Individualism as a Factor in Affairs"

Is Subject of an Inspirational and Most Impressive Address Delivered by Sir Joseph Flavelle, Before the Canadian National Newspapers and Periodicals at Recent Convention

TORONTO, Nov. 15. (Special).—Speaking at a luncheon of the Canadian National Newspapers and Periodicals Association the other day, of which organization Sanitary Engineer is a member, Sir Joseph Flavelle, who was the guest of honor, declared that individual effort and achievement are the greatest elements in life. Sir Joseph was speaking on "Individualism as a Factor in Affairs." His address was inspirational and remarkably impressive. It was a call for the development of the individual man. Sir Joseph spoke as follows:—

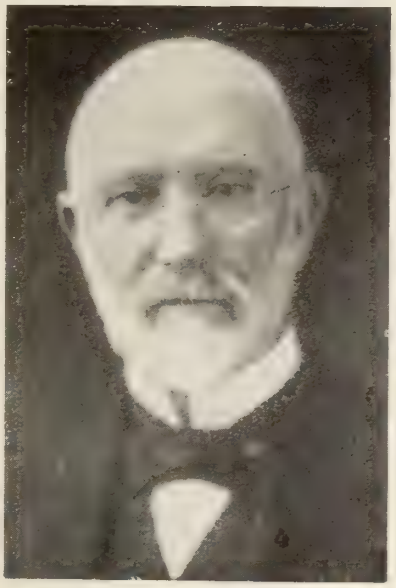
In emphasizing Individualism, I am not claiming for it a "cure-all." If we were discussing the whole broad issue I would give it its relative place, but in the time at our disposal I cannot do so. In stressing Individualism, I am only stressing one of the great underlying principles in affairs. I will introduce the subject with a few illustrations, and perhaps you will catch the drift of my thought.

In a book of Memoirs of a German Prince—one of the Hohenzollerns—the Prince tells of his experience with General Falkenhayn. The General is teaching him to ride, and after taking him across much rough country in which his heart nearly failed him, the Prince was brought up against a stiff obstacle. The General spat out: "Throw your heart across, the rest will follow." I think in this statement lies the interpretation of character. Our difficulties accumulate, and when the supreme one comes at the tail end, the test of a man is his capacity to "throw his heart across."

Lord Rosebery in his book of "Miscellanies" furnishes a copy of an address which he delivered to the students of the University of Glasgow, and in which the following appeared:

> "We had then (speaking of a period fifty years back) the terrible hand-to-hand struggle with learning on the one hand and poverty on the other, which embodied in a new form the competitive spirit of our ancestors, but which turned out indomitable Scotsmen, who had suffered so much, and who had done so much, that they needed and dreaded nothing in the battle of life."

He illustrates this by a fellow-craftsman of yours, Robertson Nicholl, the son of a Presbyterian minister, and now Sir Robertson Nicholl of the British Weekly. He won a bursary of £12, which took him to the University of Aberdeen. He spent £8 in fees, and had £4 left for his



SIR JOSEPH FLAVELLE

maintenance during twenty weeks in Aberdeen. He spent a shilling a week on lodging; his food was bread and cheese, and his drink treacle and water. Lord Rosebery says, by way of parenthesis—"I ask you to remember I am not recommending a diet, but recalling a character." Nicholl won out, even though he had to go through an Aberdeen winter without fuel or fire in his room.

"And Its Name is Courage"

Sir James Barrie, in his rectorial address delivered at St. Andrew's University in May last, said to the group of young men graduating from the University:

> "I cannot provide you with a staff for your journey, but perhaps I can tell you something about it, how to use it and lose it, and find it again, and cling to it more than ever. You shall cut it—so it is ordained—every one of you for himself—and its name is Courage."

He illustrated this in a letter to him from Captain Scott of the Antarctic, written in the tent "you know of," where it was found long afterwards with his body and those of some other very gallant gentlemen, his comrades. The letter, in part, was as follows:

> "We are pegging out in a very comfortless spot. Hoping this letter may be found and sent to you, I write you a word of farewell. I want you to think well of me, and my end. Goodbye. I am not afraid of the end, but sad to miss many a simple pleasure which I had planned for the future in our long marches.....We are in a desperate state..feet frozen, no fuel, and a long way from food, but it would do your heart good to be in our tent to hear our songs and our cheery conversation.....Later (It is here that the words become difficult) We are very near the end.....We did intend to finish ourselves when things proved like this, but we have decided to die naturally without."

Barrie then took these young graduates to Gallipoli, and told of a young officer "dropped overboard to light decoys on the shore so as to deceive the Turks as to where the landing was to be. He pushed a raft containing them in front of him. It was a frosty night, and he was naked and painted black. Firing from the ships was going on all around. It was a two hours' swim in pitch-darkness. He did it, and crawled through the scrub to listen to the talk of the enemy who were so near that he could have shaken hands with them, lit his decoys, and swam back. He seems to look on this as a gay affair. He is a V. C. now, and you would not think to look at him that he could ever have presented such a disreputable appearance, would you?" The officer was present, so that these University lads could look at the man who "threw his heart across" and the rest followed.

> "Fight on, my men, says Sir Andrew Barton,
> I am hurt, but I am not slain,
> I'll lie me down, and bleed awhile,
> And then I'll rise and fight again."

You say "These are heroic cases, incident to the war, effected by the war spirit." Let me give you one from humble life.

Two years ago, driving from Oakville to the city, in the morning, I picked up a passenger on the highway near the Goodyear rubber plant. It transpired that the man had served in the Great War. He had been invalided home from wounds, and he still had an unhealed sore on his back from shrapnel. He had secured a position at Goodyear's when business was active, and had bought a piece of land and built a shack on the Etobicoke. Then the bad times came in the rubber business, and he was laid off. He told me he had a wife and six boys, the eldest being thirteen years old. He had secured a job at the Dome Mines for the winter, and had been out that morning to tell a chum that he could secure a place for him, and was met with

the rejoinder "I'll starve before I'll go to the Dome Mines." It transpired that in the great explosion in Halifax, his wife's eyes were filled with powdered glass, and the surgeon found it necessary to remove both eye-balls, and in consequence, she was stone blind. The morning after her eyes were removed, her sixth baby boy was born. I said to him "Your wife blind, and six boys to care for—how do you get on?" "Well," he said, "We get on just about as well as we ever did. My wife does all the work at home, washes, irons, mends the children's clothes, keeps the house as she did before she lost her eyesight. When we came to Etobicoke, the neighbors saw my wife putting clothes on the line, and were told she was blind. They hesitated to believe that it was possible. She is keen to go to Dome Mines, stating that we will get free fuel for the winter, and be that much further ahead in the spring." This woman could have said that she was part of the war wreckage, that someone ought to take care of her children and her home, but she had the fighting quality in her, and said "I have a husband and children, and a home; I will take care of them." As we separated in the city, my soldier friend said, "I am sure if you were to come with me now to my home, you would find my wife whistling or singing."

Not Towards Self-Reliance

You will agree with me I am making no overstatement when I say the spirit of the present time is not running in the direction of self-reliance. The popular view writes off the individualist as a selfish beast, who thinks for himself, works for himself, and who shirks responsibility for his fellows. As a theory of life, individualism has developed mean selfishness, and its advocates are frequently neglectful of those who are less strong and less able to take care of themselves. It represents, however, a vital principle of personal responsibility, upon which, whether they know it or not, the world of men and women rest and depend. It bases its advantages upon its discharge of this responsibility, through hard, determined, unflinching personal effort.

Dependence Upon the State

Lord Rosebery said this further thing in his address to the students of Glasgow University:

"As things are, we in Scotland do not take much, or even ask much from the State, but the State invites us every day to lean upon it. I seem to hear the wheedling and alluring whispers 'Sound ye may be, we bid you be a cripple. Do you see? Be blind; Do you hear? Be deaf. Do you walk? Be not so venturesome. Here is a crutch for one arm, when you get accustomed to it you will soon want another. The strongest man, if encouraged may soon accustom himself to the methods of an invalid, he may train himself to totter, or to be fed with a spoon. The lesson of our Scottish teaching was 'level up.' The cry of modern civilization is 'level down.' Let the government have a finger in every pie, probing, propping, disturbing. Every day the area for initiative is being narrowed, every day standing ground for self-reliance is being undermined, every day the public infringes on the individual, the nation is being taken into custody by the State. I should like at least to think, that in one powerful city, youth was being reared to know that most of what a man has to do in the world he must do for himself, and that it should produce men and women who shall look not to external or even legislative support, but to themselves for their success in life. May the tone and note of this University be independence and self reliance. May it produce not merely scholars, but men."

—ON THE WAY

A TORONTO MASTER PLUMBER

Says that as he picked up his grip to leave the room of a New York hotel, while on a recent visit there, he noticed the usual sign reading, "Have you left anything?" After paying his bill at the desk he returned to his room and corrected the sign to read, "Have you anything left?"

The reliance placed upon what governments can accomplish is pathetic, and the tyranny of private enterprise.
the frequent determination of even thoughtful men to turn to government or to legislature, for relief in business and other troubles is part of the daily experience. Manufacturers call for the Department of Trade and Commerce to find export business for them. Farmers call for government controlled and operated Wheat Boards at the public risk, and with transportation charges relieved at the public expense. Labour seeks to secure through legislation, shorter hours of labour, assured employment, and minimum wages, and the people generally, through public ownership or government control are to be delivered from

A recent writer stated:

"Our Social Reform schemes are conceived on a theory of pleasure economy, but history and evolution show that man has come up through a pain economy—he has struggled up—found his way up through never ceasing effort and struggle and battle. Man is at his best rowing hard against the stream. In our facile plans for the future of society, no place is found for sacrifice, yet in all the long history of mankind, sacrifices had a conspicuous part. We are planning to rely too much upon social and political machinery, and we underestimate the importance of physical health, education, and the sense of individual responsibility. No society will survive without the integrating motive, which consists not 'in not having,' but in doing one's full share. The world is stirred to-day by powerful centrifugal forces like a whirling wheel, which will fly into pieces unless it is held together by equally powerful centripetal forces. These integrating forces are measured self-control, obedience, respect for law and authority, restraint, limitation of desires, the feeling of obligation. We have a superabundance of vital energy—what we need is vital control."

Dependence Upon Organization

If you consult with a company of your associates in business for the correction of weaknesses or the increase in production, the usual result is that your officers will say "Give us more machinery and a larger organization." It is a rare thing for the men on the working lines to say "We will learn to work harder and more intelligently, and to make greater use of the existing organization and machinery." When the United States came into the war, the President made a call upon business men to assist the nation, and there came to Washington probably the greatest aggregation of executive capacity that was ever gathered for public service in one city. They came from all parts of the Union. They sat for weeks and months, not knowing what to do. Under the American system, the Chief of Ordnance is responsible for the production of munitions of war. I said to him, "We have had some experience in Canada during the war in making use of business men for purely business purposes. If you will draft these executive men whom the President has brought into Washington to carry on the business for you, your engineers can prepare the necessary specifications and furnish the needed technical inspection, in which case I think you will secure excellent results. This is the present British practice. They tried what you are doing, but had to drop it. Their army officers and engineers now prepare designs, and furnish inspection, but business men have charge of production." He replied "I will not pass over to a body of business men what this Department should itself perform." So he built a very wonderful organization, housed it in excellently constructed buildings near the White

(Continued on page 40)

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

Markets at a Glance

THE upward price movement in the sanitary and heating supply market continues. While a few declines are recorded in the current reports, yet the number of advances remains in the majority. New higher quotations are recorded on wrought piping, lead pipe and waste, ingot tin and spelter, asbestos sheathing and magnesia pipe covering, and a leveling up process in boiler tubes, bringing slightly higher prices into effect. There has also been a moderate increase in stove pipe quotations, while it is considered probable that owing to the upward climb of raw cotton markets, there may result higher prices on cotton wastes.

Reductions are limited in number, the chief item being the lowering of pig iron by $2.50 per ton. In certain quarters, black and blue-annealed sheets are slightly easier. An easier trend is also noted in corrugated sheets, with flat sheet markets recording the fact that the quieter period is now at hand. The call for cement is also receding in volume, and the tone of compression brass work corresponds to the narrowing of the season combined with the falling level of ingot copper.

The general upward tendency in lead products, affecting solders, pipe and sheets, indicates the climb of tin and spelter price levels. The strength of zinc is also reflected in brass products to some extent. There has been some little improvement in the movement of asbestos products, while radiators and boilers are selling well. Construction activity still calls for enameled ware lines and closet outfits, this trade reflecting the interior finishing of late fall buildings.

Montreal Markets

MONTREAL, November 14.—Price developments on the local market for plumbing and steam-fitting supplies are again numerous, and most changes in prices are in an upward direction. One of the outstanding revisions is a new list on wrought iron and steel piping. Another feature is the continued strength in lead and zinc products owing to the firm tone displayed by metals in primary circles. Lead pipe, waste and solders, are all higher in price. Asbestos products are also displaying a stronger market tone, and magnesia pipe covering and asbestos sheathing are now quoted at increased levels. Stove pipes are advanced on the local market approximately five per cent. Boiler tubes also have new higher quotations on the various sizes in both seamless and lapweld.

Pig iron is reduced by Canadian producers, a factor which may be reflected on iron and steel products in future. There is also an easier feeling in corrugated sheets in some quarters. The scrap markets are slightly improved, especially in the non-ferrous group, while on the markets for virgin metals lead, tin and spelter maintain a firm tone.

FIRMER PRICE TREND IN ASBESTOS PRODUCTS

Montreal.

Advanced prices are now quoted on asbestos sheathing and magnesia pipe covering, and there is stated to be a general firming tendency in the undertone of the market. Other products such as asbestos pipe covering and boiler covering have unchanged quotations on the local market up to the present, but a revision in these materials would not be surprising in the near future if the stronger tone continues. Although there is little to indicate a stiffer tendency in production circles, the improved demand in recent weeks is described as a strong factor in this direction. Building activities have continued quite favorably during the later summer and fall months and in some lines there is difficulty in procuring ample supplies. Following are revised quotations:

ASBESTOS PRODUCTS—

	Off list prices
2 ply pipe covering	67½%
3 ply pipe covering	65%
4 ply pipe covering	60%
85% magnesia	40%
	Per bag
Boiler covering	1 50
	Per 100 lbs.
Asbestos sheathing	7 75 8 25

MAY BE HIGHER PRICES ON COTTON WASTES

Montreal.

Although cotton waste prices have been on a steady basis for some months past, in face of a strong undertone in the market in recent weeks, it is now rumored in some quarters that higher prices may be announced in the not far distant future. It is again pointed out that higher price levels have appeared on practically all other cotton goods, and there is still a strengthening tendency in raw cotton circles. A change is thought to be fully warranted in wastes, and revisions would not come as a surprise around the close of the present month, or early in December. Present quotations are:

COTTON WASTE—Cream polishing, 18c. per lb.

White—XXX extra, 16c.; XX grand, 15c., XLCR, 14c; X Empire, 13c; X press, 11½c.

Colored—Fancy, 13½c.; Lion, 12c; Popular, 9c; Keen, 7½c.

Wool Packing—Arrow, 24c.; Axle, 20c.; Anvil, 16c.

Dominion Wipers—White cotton, 20c; colored cotton, 14c.

PIPE FITTING QUOTATIONS ON STEADY BASIS

Montreal.

A firm tone continues in the market for pipe fittings with trade still in good volume. No change is made in quotations, although there is a tendency towards a firm market tone. With a fair amount of activity during the ensuing weeks, a steady to firm position is looked for in these products. Following are prevailing discounts:

PIPE FITTINGS—

Cast iron fittings	27%
Plugs, cast iron	27%
Do., solid	27%
Do., countersunk	27%
Bushings, cast	30%
Do., malleable	30%
Unions	45%
Flanged unions	27%
Flanged fittings	27%
Dart unions, black, 33	1-3%
Dart unions, galv.	13%
Nipples, ⅛ to 4", close and short	55%
Do., long	60%
Do., 4½ to 8", close and short	45%
Do., long	50%
Couplings, 4" and under	25%
Do., 4½" and larger	5%

Malleable Fittings—

Piece list effective June 1st, 1922. Discount 70 per cent.

NEW LIST ISSUED ON WROUGHT PIPE

Montreal.

A new list, No. 57, effective November 1, now governs domestic markets on

wrought piping. An increase of approximately 2 per cent. is announced on standard buttweld black steel pipe from one inch upwards, while on wrought iron a minor adjustment in prices is made on the same sizes. In lapweld black piping a revision upward is also recorded, although on certain sizes of galvanized prices are now slightly lower. The upward tendency in this market has been pointed out in recent issues of Sanitary Engineer, it becoming more pronounced last week when new higher quotations were considered pending. Costs of raw materials have continually advanced since the last revision, and supplies of skelp have been hard to obtain owing to transportation delays. The recent advance on American markets is also another factor which allows the announcement of higher prices on domestic markets to come without any great surprise.

SLIGHT INCREASE IN STOVE PIPE PRICES

Montreal.

An increase of approximately five per cent. is made in quotations on stove pipes. These are now quoted at net list, former discount being 5 per cent. New quotations on the patented lock pipe are as follows: 6-in., $12.73; 7-in. $13.64 per hundred.

COPPER PRODUCTS SHOW NO PRICE CHANGES

Montreal.

Current quotations on copper and brass sheets, rods and tubing remain unchanged and the undertone of the market is now described as on a steady basis. There was a very firm tone noted in former weeks due to the strong market tendency of copper on primary metal markets, but this has recently shown some abatement, with signs of weakness. The movement of these products is fair for this season of the year at the following quotations:

	Base.
BRASS—	
Sheets, base	0 24
Rods, base ½ to 1 in., round	0 22
Tubing, seamless, base	0 30
F.o.b.	
COPPER—	
Rods, ½ to 2 in.	0 29
Soft sheets, plain, 16 oz., and heavier	0 37
Plain tinned, 16 oz. and heavier	0 36
Polished, and tinned, 16 oz. and heavier, lb.	0 41
Tubing, lb.	0 41
Tubing, lb.	0 39

Above prices are full sheets and bars. Cut sheets and bars are 5c. per lb. higher.

GENERAL UPWARD CHANGE IN LEAD PRODUCTS

Montreal.

Lead on primary markets continues on its upward climb, while spelter and tin are also again reported with firmer price levels. The tendency in these basic materials is further reflected on finished products, following the advance in solder prices two weeks ago. Lead pipe in all weights is increased one cent per pound, waste prices showing the same advance. Quotations on solder register a further increase of one-half cent per pound on all grades with the exception of wire solder. Further price developments on this market will depend entirely on what action is displayed in primary circles, and while these metals have now reached levels which are considered high by some well informed, there is no indication at present of any weakness developing. Revised quotations are:

LEAD AND ZINC PRODUCTS—	
Lead pipe, per 100 lbs., up to 2"	14 00
Do., 2" to 8"	15 00
Do., 8" and over	16 00
Lead waste, per 100 lbs.	15 00
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	15%
Lead wool, lb.	0 13½
Lead sheets, 2½ lbs., sq. ft. lb.	0 11
Lead sheets, 3 to 3½ lbs., sq. ft. lb.	0 10¾
Do., 4 to 8 lbs., sq. ft. lb.	0 10
Cut sheets, ¼c. lb. extra and cut sheets to size, ¾c. lb. extra.	
Solder, guaranteed, lb.	0 26½
Do., strictly, lb.	0 23½
Do., commercial, lb.	0 22½
Do., wiping, lb.	0 22½
Do., wire, lb.	0 36
Zinc, sheets, casks	0 11
Do., broken lots	0 11½

HIGHER QUOTATIONS ON BOILER TUBES

Montreal.

An increase of from three-quarters to two cents per foot is announced in the various sizes of boiler tubes, both on seamless and lapweld. A somewhat improved movement is now in evidence on these products, and it is noted that delivery from the mills has tightened up considerably in recent weeks. This improvement in demand naturally has assisted towards a firmer undertone, and with continued activity during the remainder of this month a steady to firm outlook is presented. Following are new average quotations:

BOILER TUBES—	Seamless	Lapweld
1 inch	20 00	....
1¼ inch	22 00	....
1½ inch	21 00	....
1¾ inch	24 50	24 00
2 inch	21 00	19 75
2¼ inch	24 00	22 25
2½ inch	27 00	23 25
3 inch	33 00	29 50
3½ inch	38 00	34 25
4 inch	49 00	43 50

CONSTRUCTION STILL CALLS FOR ENAMELED WARE

Montreal.

With the market for enameled ware again described as a little steadier, trade is also said to be continuing in fair seasonal proportions for this time of the year. Rumors of price shading still exist in some quarters, while other firms state that for ordinary business prices are fairly well maintained. Building operations have now reached the stage in many instances where inside work is under way, thus demanding supplies of this nature. There is still a feeling that prices will show very little material change in the ensuing weeks. Following are list prices and discounts:

ENAMELED WARE—	1 only	2 only	3 only
Sinks, roll rim—			
18 x 30			$23 00
Sinks, flat rim—			
16 x 24	$ 7 50	$ 7 40	$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide			51 40
Bath tubs, 5½ feet.			57 10
Lavatories—			
17x19 in. Apron F139 or P4045			15 30
18x24 in. Apron F154 or P3845 or P3847			23 60
18x21 in. Apron F169 or P4205			17 60
17x19 in. Roll rim. F241 or P4345			12 60
Less 33 1-3 per cent.			

EASIER TENDENCY NOTED IN CORRUGATED SHEETS

Montreal.

There are still signs of a weakening in the market for corrugated sheets and shading of prices is rumored in some quarters. According to one local dealer trade in these materials, while fair, is not as active as might be expected at this season, especially this year when following spring business which was unusually brisk. Requirements for fall trade were anticipated and fairly heavy stocks of flat sheets were placed. With the slackening in business, dealers are anxious to reduce stocks as low as possible before the winter months set in, and some are willing to offer a price concession for attractive orders. While this is the version of one distributor, it is generally admitted that trade is a little quieter, and prices are slightly easier than formerly. Following are average quotations:

CORRUGATED SHEETS—	Per 100 Sq. Ft.
No. 28 gauge	$6 50
No. 26 gauge	7 00
No. 26, U. S. gauge	8 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50
Less 10 per cent.	

Lighter than 24 gauge and wider than 27 inches, 75c. per square extra.

FURTHER DECLINE IN PIG IRON PRICES

Montreal.

Conditions on the local iron and steel market are now directly or indirectly affected by the recent revision in pig iron prices. To some the reduction of $2.50 per ton by Canadian producers will not materially change the outlook, for the present at least. It is stated that the quotation on the domestic product is only now on a par with the imported iron, and mills in this section have recently been purchasing the Scottish and English pig. Stocks of this too are now sufficient to carry them for some weeks ahead, or where there is any shortage this will be taken care of between now and the close of navigation.

Current trade in bar products continues in fairly satisfactory volume, and although there are no larger enquiries there is a steady volume of smaller business. While it is naturally expected that trade will show a slackening towards the latter end of the month, November will bring returns comparing favorably with previous months. Quotations locally are unchanged at following levels:

BAR IRON—	
Common bar iron, 100 lbs.	3 15
Refined iron	4 65
Irish finish machinery steel	3 20
Mild steel	3 15
Single reeled machinery steel	5 25
Band steel	3 65
Spring steel	4 75 8 50
Sleighshoe steel	3 15
Tire steel	3 35
Harrow tooth steel	3 30
Toe caulk steel	4 05
Mining tool steel, per lb.	0 20½
Black Diamond tool and cast steel, per lb.	0 20½

NOTE—Refined iron is approximately $1.50 per 100 lbs. over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs extra.

NO FURTHER CHANGE IN CLOSET COMBINATIONS

Montreal.

No further change has been made in quotations on closet outfits and other sundry lines since the revision two weeks ago. Prices, however, are still considered as nominal, and the opinion was expressed in one quarter that further slight changes might be announced in the near future. It is expected that any revision will be of a slight nature and more in line of an adjustment. Following are present average prices:

CLOSET COMBINATIONS—

	each
Low down outfits,	
Closet, standard outfit, oak	25 00
Do., post hinge seat	26 00
Do., oak vitro or Pussyfoot	26 00
Do., post hinge seat	26 20
Do., mahogany vitro or Pussyfoot, post hinge seat and cover	28 45
Do., vitreous china, oak post hinge seat and cover	28 45
Do., vitreous china, mahogany post hinge seat and cover	29 50
Do., white Vitro mahogany post hinge seat and cover	29 50
hogany post hinge seat and cover	28 70
Do., enamelled iron tank, oak post hinge seat and cover	29 50
Do., enamelled iron tank, oak post hinge seat and cover	29 50
post hinge seat and cover	29 50
Add for ⅜ in valve on supply pipe	1 25
Add for spud	0 60
Add for reverse trap bowl	1 50
Add for syphon jet bowl	7 00
Deduct for supply pipe	0 80
Deduct for floor hinge	0 60
CLOSET BOWLS—	
Richelieu bowl	8 50
Washdown bowl with spud	10 60
Reverse trap bowl with spud	11 35
Syphon jet bowl with spud	16 25
CLOSET SEATS—	
Oak post hinge seat and cover	3 85
Oak wood strip seat and cover	3 50
Mahogany finish post hinge seat and cover	4 05
CLOSET TANKS—	
Low down, oak vitro with fittings, less seat	12 25
White vitro or Pussyfoot with fittings, flush elbow and supply	15 65
Vitreous china tank with fittings, flush elbow and supply	19 00
Enamelled iron with fittings, flush elbow and supply	16 50

SLIGHT IMPROVEMENT AGAIN SEEN IN SCRAP MARKETS

Montreal.

Dealers in scrap metals are a little more optimistic, and have been offered a certain amount of encouragement recently through a better feeling in some lines. Non-ferrous metals are firmer in tone, both copper and brass waste showing a slight improvement. Whether this condition will continue is thought problematic, there being the position of copper in primary circles and a dull market to be considered. In iron and steel scrap there is very little change, and although heavy melting steel is advanced in price, there is apparently little interest taken on the part of consumers. Cast iron is displaying an easy market tone, the recent decline in pig iron prices assisting in this direction. There is a feeling that business from now until the colder weather will show an improvement, as stocks among consumers are undoubtedly low and an effort will be made to secure supplies while the weather is more suitable. Following are average dealers' buying prices:

WASTE MATERIALS—

Automobile Tires	0 50
Rubber shoes	0 02
Yellow brass	0 05 to 0 06
Red brass	0 08¾
Light brass	0 04
Scrap zinc	0 04
Lead, heavy	0 04½
Lead, tea	0 03
Light copper	0 08½ to 0 09
Heavy copper	0 11¼
Wrought iron, R. Rd., No. 1 per gr.ton	10 00
Malleable scrap (ton)	9 00 to 10 00
Pipe scrap (ton)	7 00
Heavy melting steel	9 50 to 10 00
No. 2 busheling	3 00
Boiler plate	8 00 to 9 00
No. 1 machinery cast	20 00 to 22 00

RADIATORS AND BOILERS ARE GOOD SELLERS

Montreal.

"We are still busy" is the general statement of manufacturers and distributors of radiators and boilers, in describing trade. Although the season is fast advancing, there is still a good amount of construction demanding supplies. Another factor contributing to the present active period is that deliveries with some manufacturers were delayed earlier in the season and they are now having an opportunity to catch up. With open weather continuing for a short time hence it is said that a brisk trade is assured for the earlier winter months at least. Prices are steady at following quotations:

RADIATORS AND BOILERS—

Radiator list prices are for 1, 2, 3, 4 and 5 column radiators, per sq. ft.

45 in. to 38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60. Discount 55 per cent for hot water, and 56 per cent for steam.

Wall radiators—5 ft., $1.15; 6 ft., $1.10; 7 ft., $1.05; 9 ft., $1.05; 12 ft., $1.05; Discount 52 per cent.

Boilers—Round hot water boilers, sizes from 0 to 10, 60 per cent. off list. Square or sectional hot water or steam boilers, 15 in., 15 per cent. Square or sectional water boilers, 19 in. to 36 in., 20 per cent. Square or sectional steam boilers 19 in.. to 36 in 17 per cent. Ontario Government trimmings, 15 per cent.

Round steam boilers, standard trimmings, 28 per cent. Ontario Government trimmings, 25 per cent.

F.o.b. Montreal, Toronto, Guelph.

SUGGEST NEW F. O. B. POINTS IN QUEBEC

As Sanitary Engineer goes to press advice is received that a movement is now under way to quote plumbing supplies f.o.b. Quebec and Sherbrooke. This it is stated, will entail increased prices to these points on enameled ware, closets, soil pipe and range boilers. While this revision at present is merely in the stage of a suggested change, it is stated that distributors in Montreal have the matter under consideration and whether the plan will be generally adopted is awaited with interest.

SLIGHTLY EASIER TENDENCY IN COMPRESSION GOODS

Montreal.

Although there is no general announcement up to the present time of a revision in certain lines of valves and bibbs, there is said to be a little easier feeling in the market, and certain firms are quoting an extra discount on some of the best selling lines. In one quarter a discount of 50 per cent. is quoted on standard compression bibbs, although valves and cocks remain unchanged at 45 per cent. off. Whether a general revision will be announced in the near future is hard to say, but in view of the easier tone of copper on primary markets, a slight change would not be surprising to some. Following are average discounts:

Compression work, standard	45%
Fuller work, standard	30%
Quick opening compression bibbs	43%
Bath cocks, quick opening	41%
Bath cocks, compression	41%
Bath cocks, compression	41%
Basin cocks, quick opening	46%
Flatway stop and waste cocks, standard	54%
Roundway stop and waste cocks, st'nd'rd	46%
Brass steam cocks, standard, ¼ in.	50%
Radiator valves, standard	54%
Do., removable discs	54%
Globe, angle and check valves, standard	25%
Gate or straightway	25%
Emco globe valves	33%
Emco check valves	33%
Jenkins globe, angle, check and swing check	10%
Jenkins gate or straightway	16%
Jenkins iron body, globe and angle	15%
Jenkins iron body, gate	25%
Jenkins iron body, globe and angle	15%
N. P. "O" and "S" traps	40%

SHEET MARKETS MAY FOLLOW EASIER TREND

Montreal.

The recent announcement of a slight reduction on American sheet markets is looked upon as likely to have little or no material effect locally at the present time at least. What will have a greater bearing on the situation is the fact that stocks are now fairly well filled for the coming months, and where there is not sufficient there are orders now on the way from overseas to arrive before the close of navigation. Whether the reduction on markets to the south is indicative of the future trend of these products is hard to say, but considering that deliveries are still delayed and the rise in certain raw materials, such as spelter for galvanizing, it is hardly felt that prices will decline to any great extent. It is looked upon more as an adjustment. Undoubtedly the undertone of sheets has been a little easier than on other iron and steel products but not so pronounced as to indicate a general weakness. However, price levels locally are not looked upon as being as firm as formerly.

HIGHER LEVELS MAINTAINED IN INGOT METAL MARKETS

Montreal.

The ingot metal markets retain their firm tone, with perhaps not quite as much activity as has recently been showing. Tin has been somewhat erratic during the past week or so owing to extensive manipulation, but generally speaking all metals, with the exception of copper, may now be considered as having reached fairly high levels.

Toronto Markets

TORONTO, November 14.—The price developments in the current plumbing supply markets are headed by the advance in wrought piping. This rise, however, is not of marked extent, bringing slightly increased levels into effect on buttweld pipe in sizes one inch and larger, also in lapweld 3½ inches and larger. Smaller sizes than these remain unchanged. Other price advances also appear on lead pipe and waste, and asbestos sheathing. In some quarters lead sheets have been slightly advanced, but this rise is not uniform. A leveling up process in boiler tube prices is also recorded, while tin and spelter appear with further increases in the ingot metal markets.

The current reductions include slightly easier levels on black sheets, blue-annealed sheets and pig iron. The reaction in the latter tends to relieve to some extent the strong upward tone formerly noted in production costs of various sanitary and heating products. Owing to the strength of raw cotton markets, some higher levels on cotton waste in the near future would not be surprising.

ADVANCED PRICES ON LEAD PIPE AND WASTE

Toronto.

Due to the recent upward trend in primary lead markets, quotations on lead pipe and waste are advanced one cent per pound this week. This revision places the base list quotation on lead pipe at 14 cents, with the usual discount of ten per cent. remaining unchanged. No change has yet been made in prices on lead sheets, the base of 9½ cents still being in effect. The climb of ingot lead has been specially pronounced during recent weeks, the strengthened undertone being followed by higher quotations, which trend is reflected in the market for finished products.

In conjunction with the upward movement of other lead products, prices on lead sheets have been advanced in some quarters. The increase is approximately half-a-cent per pound, this change bringing current base levels to ten cents. The new higher level is not yet general, however, the former price of 9½ cents still being maintained by other distributors.

LEAD AND ZINC GOODS—

Lead pipe, list, per lb.	0 14
Lead waste pipe, list, per lb.	0 15
Do., over 8 in., list, per lb.	0 16

Lead pipe is subject to a discount of ten per cent.

Lead traps and bends, less 15 per cent.

Lead sheets, 4 to 6 lbs., sq. ft. in rolls, lb. [illegible] 0 16

Cut sheets, ½c to ¾c lb. extra and cut sheets to size, 1c lb. extra.

[illegible] wire per lb.	0 31
Do., commercial, lb.	0 25
Do., strictly, lb.	0 23½
Do., guaranteed, lb.	0 26½
Do., wiping, lb.	0 23½
[illegible] per lb. 0 11	0 12

HIGHER PRICE LIST ON WROUGHT PIPING

Toronto.

As forecast in previous pipe market reports appearing in recent issues of Sanitary Engineer, a new higher price list on wrought piping is now in effect. This supersedes list No. 56, which was issued last August, and brings quotations on standard buttwelds in sizes one inch and larger at slightly increased levels. Smaller sizes show no change. A similar revision is made in standard lapweld pipe, the current advance only being made on sizes 3½ inches and larger. This development corresponds with existing conditions outlined in the last issue and follows on the advances recently put into effect in southern primary markets. Price list No. 57, showing net prices in random lengths on both steel and wrought iron black and galvanized piping, is quoted below:

WROUGHT PIPE

Price List No. 57. November, 1922.

Standard Buttweld Pipe S/C

Per 100 ft.

Size	Steel Blk.	Gen. Galv.	Wrot. Blk.	Iron Galv.
⅛ in.	6.00	8.00	....	....
¼ in.	3.96	6.00	7.20	9.30
⅜ in.	3.96	6.00	7.20	9.30
½ in.	5.02	6.55	7.31	8.93
¾ in.	6.10	7.82	8.86	10.70
1 in.	8.67	11.22	12.75	15.47
1¼ in.	11.73	15.18	17.25	20.93
1½ in.	14.03	18.15	20.63	25.03
2 in.	18.87	24.42	27.75	33.67
2½ in.	29 84	38.61	....	....
in.	39.02	50.49	....	..
3½ in.	50.60	64.40	....	....
4 in.	59.95	76.30	....	....

Standard Lapweld Pipe S/C

Per 100 feet.

	Blk. Steel	Galv. Gen.	Blk. Wrot.	Galv. Iron
2 in.	22.20	27.75	31.08	37.00
2½ in.	32.76	41.54	46.80	56.16
3 in.	42.84	54.32	61.20	73.44
3½ in.	51.52	65.32	73.60	88.32
4 in.	61.04	77.39	87.20	104.64
4½ in.	71.12	90.17	1.07	1.27
5 in.	82.88	105.08	1.24	1.48
6 in.	1.08	1.36	1.61	1.92
7 in.	1.40	1.79	2.07	2.50
8L in.	1.48	1.88	2.18	2.63
8 in.	1.70	2.16	2.51	3.02
9 in.	2.07	2.62	2.97	3.59
10L in.	1.92	2.43	2.82	3.39
10 in.	2.47	3.13	3.63	4.37

LEVELLING UP PROCESS IN BOILER TUBE PRICES

Toronto.

Some slight revisions have been made in prices on a few sizes of boiler tubes, the changes being of an upward nature. While no general advance is being made, it is described as simply a leveling up in quotations at the present time. In the face of increases recently announced on other domestic markets, it is pointed out that local conditions govern the prevailing levels. However, distributors also state that some further advances on lapweld tubes are looked for in the near future, according to the strength of current primary markets and the cost of materials. One factor of note is the prevalence of slightly lower prices outside of Toronto, which situation is receiving attention at this time. Following are current average quotations:

BOILER TUBES—

Size	Seamless.	Lapweld
¾ inch	$19 00	$.....
1 inch	20 00	.....
1¼ inch	22 00	.....
1½ inch	24 00	.....
1¾ inch	24 00	23 00
2 inch	22 00	19 00
2¼ inch	24 00	.....
2½ inch	27 00	23 00
3 inch	34 00	28 00
3¼ inch	36 00	33 00
3½ inch	38 00	33 00
4 inch	55 00	40 00

HIGHER PRICE LEVELS ON ASBESTOS SHEATHING

Toronto.

A general improvement in the market for asbestos products is now recorded together with some higher price levels on asbestos sheathing. Quotations on sheathing have gradually climbed upward until the prevailing figure is $7.75, an approximate advance of $1.00 per cwt. There is a slightly better movement in these lines generally, which contributes to a seasonal volume of activity, although manufacturers and distributors state that there still remains plenty of room for improvement. Current quotations follow:

ASBESTOS PRODUCTS—

Pipe Covering—	
Air cell, 4ply	60 per cent. off list.
Air cell, 3 ply	65 per cent. off list.
Air cell, 2 ply	67½% off standard list.
Boiler Covering	$1.50 per bag.
Asbestos Sheathing	$7.75 per 100 lbs.

INTERIOR FINISHING CALLS FOR ENAMELLED WARES

Toronto.

Interior finishing is still going on among fall buildings in fairly brisk volume and the consequent call for enameled ware products is measuring up to general expectations in better shape than earlier in the season. It is pointed out that the majority of buildings erected this year and especially in the fall have been of the dwelling house type. Consequently, the activity in enameled products is well spread out, and while orders are chiefly of a moderate nature, the aggregate is fairly considerable. No changes are made in quotations, the market having been comparatively steady throughout recent months. Lists and discounts follow:

ENAMELED WARE—

Enameled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.			51 40
Do., 5½ ft.			57 10
Lavatories—			
17x10" Apron F139 or P4045			15 30
18x24" Apron F154 or P3845 or P3847			23 60
18x21" Apron F169 or P4205			17 60
18x21" Roll Rim, F197, F199 or P4655-6			15 40
17x19" Roll Rim, F241 or P4345			12 60
Sinks, Roll Rim, 16x24 in.			18 10
Do., 18 x 30 in.			23 00
Do., 20 x 30 in.			24 70
Sinks, Flat Rim—	3 only	2 only	1 only
16x24	$7 60	$7 70	$7 80
18x30	8 50	8 60	8 70
20x30	9 70	9 80	9 90

Above prices, list, less 33 1-3 per cent.

Al lsteel enamel baths, 4 and 4½ ft.	$14 00
Do., 5 ft.	15 00
Do., 5½ ft.	16 75

Steel bath quotations are net.

BRISK MOVEMENT STILL EVIDENT IN RADIATORS

Toronto.

Brisk trade in radiators and boilers is still the rule, with the seasonal volume of activity not only being slightly heavier than in recent years at this time, but the period is also described as more spread out owing to late building and construction work. With stocks moving out fairly rapidly, prices have remained on a firm basis. No changes are anticipated for the present, at least, although pig iron is now on a receding market. Manufacturers point out that other producing and distributing factors enter into current quotations, such as fuel prices and labor costs. Following are unchanged lists and discounts:

RADIATORS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60.

Discount on 2, 3, 4 and 5 column standard sizes, 55 per cent for water and 56 per cent for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hosptial sizes 47 per cent for water and 48 per cent for steam.

Discounts on 1-column hospital size, water 33⅓; steam 34⅓.

Wall radiators—5 ft. $1.15; 6 ft. $1.10; 7 ft. $1.05; 9 ft. $1.05; 12 ft., $1.05. Discount 52 per cent.

BOILERS—

Water:

Round 60 per cent. off list. Square 20 per cent. off list.

Steam:

Round, 25 per cent off list; Square, 15 per cent. off list.

LATE SEASONAL ACTIVITY IN TROUGH AND PIPE

Toronto.

The late fall building activity combined with favorable weather which has been generally experienced during recent weeks, has contributed towards maintaining a brisk seasonal movement of eavestrough and conductor pipe. Distributors state that current trading is quite satisfactory, and in fact better than anticipated in most quarters for this time of the year. Stocks have been moving out in good shape and prices are therefore continuing for the present on a firm level. A slightly easier trend has been recorded in flat galvanized sheets, but this development is described as not of sufficient extent to affect the finished market products. Current quotations follow:

TROUGH (EAVE)—

O. G. Square Bead—

Per 100 ft.		Per 100 ft.
8 inch	$15 90	15 inch $28 80
10 inch	17 70	18 inch 36 80
12 inch	21 20	inch

D. G. Round and Half Round

8 inch	16 90	15 inch	29 80
10 inch	18 70	18 inch	37 80
12 inch	22 20		

Less 70 per cent.

PIPE (CONDUCTOR)—

Plain, round or corrugated.	Per 100 ft. in 10 ft. lengths.
2 in., in 10 ft. lengths, list	18 40
3 in., in 10 ft. lengths, list	22 30
4 in., in 10 ft. lengths, list	29 60
5 in., in 10 ft. lengths, list	40 00
6 in., in 10 ft. lengths	49 00

Less 70 per cent.

ELBOWS (CONDUCTOR)—

2 inch, list	5 25
3 inch, list	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00

Less 60 per cent.

GOOD SEASONAL TRADE IN CLOSET OUTFITS

Toronto.

Activity in closet outfits and fixtures is described as well up to expectations for this time of the year. Owing to late building activities this fall, the regular seasonal movement for closet outfits has kept up in good proportions over a relatively longer period. Interior finishing is still receiving attention, with corresponding improvement over the trade records of last year. Prices remain unchanged on these goods, the following levels representing local quotations:

CLOSET COMBINATIONS—	Each.
Closet, standard outfit, oak	26 00
Do., with post hinge seat	26 20
Do., mahogany Vitro or Pussyfoot with mahogany post hinge seat and cover	28 45
Do., vitreous china, with oak post hinge seat and cover	28 45
Do., vitreous china, with mahogany post hinge seat and cover	28 70
Do., white Vitro or Pussyfoot, with oak post hinge seat and cover	28 45
Do., white Vitro or Pussyfoot with mahogany post hinge, seat and cover.	28 70
Do., enamelled iron tank with oak post hinge seat and cover	28 45
Do., enamelled iron tank with mahogany post hinge seat and cover	28 70
Additions or reductions to above:	
Add for reverse trap bowl	1 50
Add for syphon jet bowl	7 00
For ⅜ in. valve on supply pipe	1 50
Deduct for supply pipe	0 60
Deduct for floor flange and bolts	0 60
CLOSET BOWLS—	
Washdown bowl with spud	10 60
Reverse trap bowl, with spud	12 10
Syphon jet bowl, with spud	17 00
"Richelieu" bowl	10 50
CLOSET TANKS, low down, Oak, Vitro or Pussyfoot tank, with fittings, less seat	13 20
White Vitro or Pussyfoot tank with fittings, flush elbow and supply	15 65
Vitreous china tank with fittings, flush elbow and supply	18 00
Enamelled iron tank with fittings, flush elbow and supply	18 00
CLOSET SEATS—	
Oak post hinge seat and cover	3 85
Oak wood strip seat and cover	3 50
Mahogany finish post hinge seat and cover	4 05
Oak Richelieu seat and cover	3 50

RAW COTTON TREND MAY AFFECT WASTES

Toronto.

It is considered possible that some higher price levels on cotton wastes will develop in the near future. Quotations on raw cotton have continued to record a series of marked revisions, the average result of which, however, places raw cotton markets on a very firm basis. Practically all semi-finished and manufactured cotton lines have been advanced in reflecting this upward movement in primary centres. Up to the present, cotton wastes have remained on a steady level, but adjustments would not be surprising.

COTTON WASTES—

Cream, polishing	0 18
White, XXX	**0 18**
XX	0 16
X	0 15
XC	0 14
XXX, extra	0 16
XX, grand	0 15
XLCR	**0 14**
X, Empire	**0 13**
X press	0 11½
Colored, No. 1	0 13
No. 17	0 12
No. 1A	0 11
No. 1B	0 10
Fancy	0 13½
Lion	0 12
Standard	0 10½
Popular	0 09
Keen	0 07½

Above lines subject to trade discount for quantity.

TRADE IN COMPRESSION GOODS WELL SUSTAINED

Toronto.

There is a fairly good call noted for compression goods, the movement keeping up exceptionally well for this time of the year. While a slackening has naturally been evident from the brisk volume of trade recorded in recent weeks, yet Fall building activities have resulted in sustaining the demand well into what is usually regarded as the quiet period. No further revisions have been made in prices, the following being discounts quoted locally:

VALVES—	Per cent.
Compression work, standard	45
Fuller work, standard	30
Bath cocks, compression	41
Do., Fuller	25
Flatway stop and wastecocks, stand'd	54
Roundway stop and waste cocks std.	46
Brass steam cocks, standard ½" to 2"	50
Do., 2½" to 3"	43
Globe, angle and check valves, std.	25
Mueller globe, angle and check	25
Mueller composition disc steam valves	33
J.M.T. valves, screwed	10 10
J.M.T. gate valves, screwed	16 10
Jenkins gate or straightway, screwed	16 10
Jenkins, globe, screwed	10 10
Radiator valves, standard	54
Do., removable disc	54
Emco, J. D., rad. valves, screwed	33
Emco swing check, ⅜" and ½"	40
Do., other sizes	33
Webber gate valves, screwed	33
Emco globe valves, std.	25
Emco globe valves, J.D., screwed	33
Basin Cocks—	
No. 0 and 1 Fuller pattern	30
Quick opening No. 3633	50
No. 3623, plain or index handle	34

STRENGTH OF ZINC REFLECTED IN BRASS

Toronto.

There has been no decided development in the market for brass and copper products such as sheets, rods and tubing. Trade conditions are practically the same as reported during the past two weeks. The upward trend in zinc prices is naturally reflected in the stronger tone of manufactured brass lines, but no further adjustments in quotations have taken place. Most metals remain with an upward tendency at the present time, both in primary and domestic markets. Prevailing local quotations follow:

BRASS—

Sheets base, per lb.	0 23
Rods, base, per lb.	0 22
Tubing, base, per lb.	0 30
COPPER—	
Rods, base, per lb.	0 30
Soft sheets, plain, 1 oz. and heavier, lb.	0 29
Do., plain tinned, 16 oz. and heavier, per lb.	0 36
Do., polished, and tinned, 16 oz. and heavier, lb.	0 41
Tubing	0 33

PIG IRON QUOTATIONS RECEDE $2.50 PER TON

Toronto.

There has been a decline in domestic pig iron prices. The reduction is $2.50 per ton, which change brings the current new level to $33.80. It is stated that one of the primary reasons for this development was the operations of the Buffalo pig iron market, and the lower level compares very favorably with southern primary quotations. It is pointed out that this decline may be reflected in future price levels on finished iron and steel products.

PIPE FITTINGS TRADE OF FAIR PROPORTIONS

Toronto.

There is still reported a fairly good movement of pipe fittings for this period of the year. Prices have remained unchanged at the steady basis evident during recent weeks. The tendency in wrought nipples and couplings is toward slightly higher levels in view of the recent advance in wrought piping, but no upward change is looked for in view of the fact that the relative extent of the increase was not considered sufficient to affect these lines. Prevailing discounts follow:

PIPE FITTINGS—	Per Cent.
Cast iron fittings	27
Plugs, cast iron	27
Do., solid	27
Do., countersunk	27
Bushings, malleable	30
Do., cast	30
Unions, ¼ in. to 2 in	45
Do., ⅛ in., 2¼ to 4 in.	45
Flanged unions, std.	27
Flanged Fittings	30
Dart unions, blk., ¼ to 2 in.	34
Do., ⅛ in., 2¼ to 4 in.	23
Do., galvd., add to black	30
Nipples, blk., and galvd. ⅛ to 4 in. close and short	55
Do., 4½ in. and larger	45
Do., long, ⅛ in. to 4 in.	60
Do., 4½ in. and larger	50
Do., running thread	35
Couplings, 4 in. and under	25
Do., 4½ in. and larger	5

MALLEABLE FITTINGS—
New piece list, effective June 1, 1922.
Discounts, Class A, less 60 per cent.
Discounts, Class B, less 70 per cent.
Discounts, Class C, less 70 per cent.

EASIER TREND IN CORRUGATED MARKET

Toronto.

With the approach of the quiet session, an easier tone has developed in the corrugated sheet market. Prices on flat sheets have also registered a decline during recent weeks and following this precedent, some slight adjustments in corrugated quotations are more or less looked for in the ensuing weeks. Reports of some price shading on lighter gauges have again appeared, although concessions of this nature are considered consequent upon distributors moving stocks prior to the completion of building activity for the current season.

CORRUGATED SHEETS—	Per 100 Sq. Ft.
No. 28 gauge	6 50
No. 26 gauge	7 00
No. 26, U. S. gauge	8 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50

Less 10 per cent.
Lighter than 24 gauge and wider than 27 inches, 75c. per square extra.

CALL FOR CEMENT RECEDES IN VOLUME

Toronto.

The call for cement is now receding in volume as construction activities for the year near completion. With the approach of colder weather, trade in cement naturally enters upon the quiet period. Quotations remain unchanged, however, ruling prices being as follows:

CEMENT— Car load lots.	Toronto.
Per barrel, delivered	3 63
Less car lots.	
Per barrel, f.o.b. yard	4 35
Per barrel delivered	4 55

Single bags, $1.15 each; 4 bags to barrel.
Extra charge of $1.50 per load on less than 24 bag lots.
Rebate of 20 cents for empty sacks.

"FAIR TO MIDDLING" TRADE IN SOIL PIPE

Toronto.

"Fair to middling" is the general expression of manufacturers and distributors of soil pipe when describing current market conditions. There is evident a seasonable demand for both soil pipe and fittings which measures up very well with previous records for this time of the year. Quotations remain unchanged. It is pointed out that prices on these products did not reflect the sudden climb of pig iron costs in the midsummer period, and thus no corresponding rise was recorded. Now that pig iron quotations are receding from the higher levels, therefore, this trend does not affect the soil pipe market, at this time. Following are unchanged local discounts:

SOIL PIPE—	
2 inch	Less 33 1-3%
3 inch	Less 33 1-3%
4 inch	Less 33 1-3%
5 and 6 inch	Less 33 1-3%
8 inch	net
FITTINGS—	
2 to 6 inch	Less 45 per cent.

FIRM MARKET TONE IN RANGE BOILERS

Toronto.

Quotations on range boilers continue unchanged at the discounts of 45 per cent. off the regular list for standard and 35 per cent. for extra heavy. The undertone in this market is also described as very firm, a development which is attributed to the fact that trade has been on a brisk plane during recent weeks, and also with stocks being in a relatively low condition. Seasonal activity in range boilers is reported keeping up in fair volume. Little change is generally looked for in current price levels until producers are again well ahead of the demand and stocks have been repleted. It is estimated that this will take until the end of the present year.

RANGE BOILERS—

Size.	List Price.
5-gallon	$13 50
12 to 15 gallon	14 00
18-gallon	15 00
25-gallon	16 50
30-gallon	17 50
35-gallon	20 50
40-gallon	22 75
52-gallon	38 00
66-gallon	60 75
82-gallon	74 00
100-gallon	103 00
120-gallon	117 00
144-gallon	164 00
168-gallon	187 00
192-gallon	210 00

Discounts, Standard weight, 45 per cent.
Extra heavy, 35 per cent.

SHEET MARKETS MAY DEVELOP "SOFT SPOT"

Toronto.

Conditions in the local sheet market show slightly easier levels on black and blue annealed sheets.

In discussing prevailing market factors, a prominent domestic sheet manufacturer stated in part as follows:

"I am afraid there is going to be a soft spot although from present indications it will not be what you might denote 'mushy,' especially in galvanized sheets because of the very continued strong tendency of zinc spelter.

"My idea therefore is, that for the next two or three months the Canadian buyer will sit rather tightly in the saddle and take few chances which may in the end be just as well.

"We are continuing our prices unchanged but that is due to the fact that we have had a large excess of orders in the last week or so."

GALVANIZED SHEETS—	Premier and Apollo
10¾ oz.	6 65
U. S. 28 base	6 25
U. S. 26 base	5 95
22 and 24	5 80
18 and 20	5 65
16	5 50
12 and 14	5 35
	Queen's Head
28 gauge base	7 15
26	6 75
24	6 45
22	6 30
	Fleur de Lis
28 gauge, base	6 90
26	6 50
24	6 20
22	6 05

An extra 40c. per 100 lbs. is charged for Keystone and Premier bands copper-bearing sheets.
An extra is now charged on galvanized sheets. 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown in 20c. per 100 pounds.

BLUE ANNEALED SHEETS—	
10 gauge, base	4 20
12 gauge	4 25
14 gauge	4 30
16 gauge	4 35
BLACK SHEETS—	
18-20 gauge	4 90
22-24 gauge	4 95
26 gauge	5 00
28 gauge	5 10

A charge of 25c. per 100 lbs. is made for less than case lots. An extra 10c. per 100 lbs. is also charged on sheets 26 in. wide.

PLATES, CANADA—	Per box
Ordinary, 52 sheets	4 90
Dull, 60 sheets	5 00
Blued and oiled, boxes 52's	5 40
Do., boxes 60's	5 50
WELSH CANADA PLATES—	
Cold polished, 18 x 24, 52's	6 5
Cold Polished, 18 x 24, 60's	6 50
PLATES, COKE TIN—	
IC, 20 x 28, 112 sheets	12 50
IX, 20 x 28, 112 sheets	15 00
IX, 20 x 28, 56 sheets	8 50
PLATES, CHARCOAL TIN—	
IX, 20 x 28, 112 sheets	10 00
IXX, 20 x 28, 56 sheets	12 00
PLATES, TERNE—	
IC, 14 x 20, 112 sheets	12 00

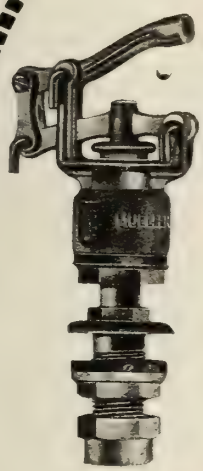
TIN AGAIN ADVANCES ON SPECULATIVE MARKET

Toronto.

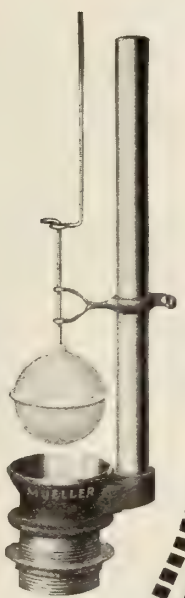
There remains an undercurrent of strength in most ingot metals with the exception of copper. In comparison with pre-war levels, lead and spelter show a distinct advantage, but copper has failed to enjoy the support of factors leading in this direction. The chief reason for this is the fact that Germany as a customer for copper has failed. Tin again features the current markets owing to advances of a speculative nature at London.

COPPER.—The suggestion of more strength in copper is found in the fact that the recent decline has been checked. The enforced absence of Germany as a leading copper consumer owing to the exchange situation still remains the keynote to permanent recovery in this metal. At the present time there has developed a slightly better tone in outside markets following a little improvement in demand. Domestic trading remains quiet and prices are unchanged from the level of 17½ cents.

(Continued on Page 40)



A-1271
Ball Cock.



A-1275
Flush Valve.

Mueller Tank Fittings Efficient and Dependable

You can readily satisfy a customer with a Mueller A-1271 Lever Action Ball Cock for high-up tanks. Mueller Ball Cocks have all the good qualities of the other makes and none of their weak points. They operate smoothly and are practically noiseless under pressure. Only the best grade metal is used in the manufacture of these Mueller fittings. They last longer and give perfect service.

The Mueller A-1275 Douglas Flush Valve is a fitting that brings many repeat orders wherever it is sold. It is accurately threaded and machined and gives efficient action. The flush ball is made of highest quality rubber and will give years of service.

Write to-day for complete description and prices of Mueller Closet Specialties.

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TORONTO MARKETS

(Continued from Page 38)

TIN.—Tin continues to supply the feature on the non-ferrous group, new high records having been established at London on a speculative advancing market. This trend is reflected in the local quotation rising another cent, which change brings current prices to 42 cents. The high figures have resulted in trading falling off somewhat.

LEAD.—This market remains strong but more settled in tone. Domestic business is a little quieter, although the basis is firm and unchanged. In primary centres there is reported to be quite a shortage of this metal, but the market is steadier with prices firm. The local level remains at $7.50.

SPELTER.—The domestic demand for spelter is quiet, this development being chiefly attributed to the higher prices prevailing. Outside markets, however, continue high and the general tone continues firm. Local prices remain at the advanced level of $9.25 recorded last week.

ANTIMONY.—This market is dull and neglected. It is estimated that consumers' requirements are of a moderate nature and they already have these taken care of. Prevailing local prices continue unchanged at 8 cents.

Winnipeg Markets

WINNIPEG, November 14.—Current trade in products such as enameled ware, radiators and boilers, closet outfits, pipe fittings and range boilers is generally fairly active for this season of the year through favorable weather conditions. A slight advance has been recorded on wrought and galvanized iron pipe. Revisions have been made in prices on Royal square sectional boilers.

SLIGHT ADVANCE IN WROUGHT IRON PIPE

Winnipeg.

There is a slight advance recorded in quotations on wrought and galvanized iron pipe. Following are the new quotations:

PIPE, WROUGHT—

	Wrought Black	Galv'd
⅛ in.	6 84	9 24
¼ in.	4 68	7 12
⅜ in.	4 82	7 26
½ in.	6 15	8 00
¾ in.	7 48	9 55
1 in.	10 65	13 72
1¼ in.	14 42	18 56
1½ in.	17 25	22 20
2 in.	23 20	29 87
2½ in.	36 70	47 22
3 in.	48 00	61 77
3½ in.	62 20	78 75
4 in.	73 66	93 28
4½ in.	87 32	110 17
5 in.	101 84	128 47
6 in.	132 07	166 63
7 in.	190 84	
8 in.	200 50	
9 in.	280 75	
10 in.	260 16	

FIRM TENDENCY IN TROUGH AND PIPE

Winnipeg.

No change is noted in quotations on eavestrough, conductor pipe or elbows but the market continues in a firm position. Owing to the stronger tendency in raw materials the market for these products continues to show strength. Local prices remain unchanged.

PRICES ON BAR IRON AT HIGHER LEVELS

Winnipeg

There has been a revision in prices on bar iron. Prevailing quotations are as follows:

BAR IRON

	Base
Small Rounds, 3/16, ¼, and 5/16"	5 40
Rounds and Squares—⅜ to 2 and flats up to and including 1 x 4"	4 35
Rounds and Squares—over 2" up to and including 2 ¾" and flats over 1 x 4 up to 6" wide	4 80
Rounds and Squares—over 2¾" and flats over 1 x 4 up to 6" wide	4 80
Rounds and Squares—over 2 ¾", up to and including 6"	5 10
Spring Steel	5 60
Bands	4 85

STEADY TONE IN SOIL PIPE AND FITTINGS

Winnipeg.

Soil pipe and fittings remain at unchanged discounts with the undertone of the market continuing firm. Conditions are described as being quiet as the winter season approaches.

CALL FOR RADIATORS AND BOILERS SEASONABLE

Winnipeg.

There is a seasonable demand for radiators and boilers, due to the building activity late this fall. It is expected the trade will remain steady on the basis of present orders. Prices remain steady at the recently revised levels.

MODERATE DEMAND FOR CLOSETS AND FIXTURES

Winnipeg.

There is a seasonable volume of business passing for closet combinations, outfits and fixtures. Quotations register practically no change.

BRASS VALVES SHOW DECLINE IN PRICE

Winnipeg.

There has been a decline on standard brass valves of the horizontal check with drip style. Half inch is quoted at $1.40, three-quarter inch $1.50, one inch $1.75.

REVISION ON ROYAL SQUARE SECTIONAL BOILERS

Winnipeg.

New price revisions have been made on Royal square sectional boilers. Series numbers 36, 25 and 19 water boilers are quoted at less 16 per cent off list price with steam at less 4 per cent. Series 48 water boilers are quoted at less 8 per cent. off list price and steam at 4 per cent.

"INDIVIDUALISM AS A FACTOR IN AFFAIRS"

(Continued from page 32)

House. The organization reached, I believe, as high as twenty-two thousand men. There were miles of blueprints illustrating the organization. There were, however, few if any, American shells fired during the war, and few, if any, American guns in service. Charged with the same duty in Ottawa, we had been at work for a year or more when someone asked for a plan of our organization. I replied "I fear we have not prepared one. In securing production of munitions of war, we have not thought of preparing a plan."

There is another aspect of this question of "Dependence Upon Organization" that is impressive. The Ford plant at Detroit is a wonderful place. You take off your hat to the men who have organized it, but looking at it from another side it is the most dis-spiriting place possible. Each man repeats the same operation on a piece of material passing before him upon a moving belt. He turns a screw, bores a hole, or does some other single act repeated all day long. As one looks at it one thinks of the noble profession of craftsmanship. I am not saying this to make light of the Ford organization, but to direct attention that we are living on our capital of craftsmanship, and one wonders what will happen at some later time when all these one-job people are called upon to do some other work. This organization of repeat work kills the development of the craftsman. He is simply a cog in a huge operating machine, and we are in danger of forgetting that a man is a man, and has a right for all round development.

Dependence Upon Associations

A few years ago, three gentlemen from a town on Georgian Bay, called on me and said, "We desire to establish a packing house plant in our town, and want to talk to you about it." They submitted their plans, and we had an interesting hour together. These men had hitherto been somewhat bitter opponents for the North Shore trade. I asked them "Who is to manage this business?" and they replied, "Oh, we will all do it." After they had gone, I said to Mr. William Davies, "These people will come to grief; they have an impression that by building a house, and organizing with some sort of general oversight from themselves, that it will go itself. They will come a cropper." The plant, which cost five hundred thousand dollars, has been closed up for the past ten years or more.

I remember during the War, that manufacturers of munitions in this Province formed a munition section of the Manufacturers Association. The President and Secretary came to Ottawa to lay their views before the Chairman of the Munitions Board. They stated: "Your revised prices for shells are too low. They cannot be made at a reason-

(Continued on page 42)

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Your money back

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will save Time, Labor and Money on any clogged or frozen drain pipe work you undertake.

Satisfactory Results in EVERY CAN or Your Money Back.

This is the HERCULES Guaranty—You Can't Go Wrong.

NO FUMES—WORKS WITH COLD WATER. 25% STRONGER.

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A Word About Cleanout Doors

You and I know that clean flues mean coal saving, and the easier cleaned, the oftener cleaned. That's why each Burnham Boiler flue has its own separate cleanout door. Any flue can be cleaned at any time, regardless of how big or little the fire is.

Write us for complete information.

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(Boiler Department)

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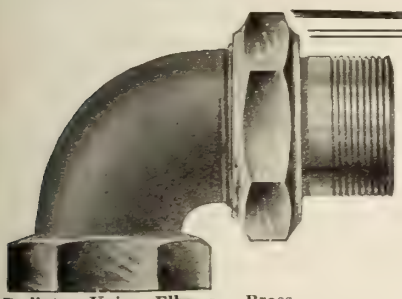
Burnham Cosy Comfort Heat

Factory: St. Catharines Ontario



Radiator Union Elbows — Brass No. 41.

Kerr N. P. Union Elbows for Radiators

In construction, design and quality of material and workmanship, these Elbows are equal to our popular line of Radiator Valves.

They have the standard angle or centre to face, and assemble on Radiators with equal facility with our Standard Steam and Hot Water Radiator Valves, thus avoiding pipe fitters' troubles with valves of long or short centre to face dimensions. Kerr Union Elbows and Union Radiator Valves make for a first class heating job.

Each Valve and Elbow is tested before it leaves our works.

Ask for them, and see that you get them.

The Kerr Engine Co., Limited

Valve Manufacturers - Walkerville, Ontario

"INDIVIDUALISM AS A FACTOR IN AFFAIRS"

(Continued from page 40)

able profit. We represent three hundred and thirty manufacturers, and we are expressing their view when we say it is necessary that we should have a higher price." I said in reply, "I am sure you are wrong; if the purpose of your organization is to secure higher prices, you do not need an association of manufacturers to convince the British Government that they should give a fair price for work done in Canada. What you have not known is that through the courtesy of a number of manufacturers, we have in detail the cost of producing various sizes of shells in their plants and the prices we have fixed are based on their experience and upon their statement that they think the price a fair one. You will perform real service with your Association if you will co-operate, and those who have greater experience assist those who have less, in establishing better production with the same overhead. You will make more money, and you will assist a hard pressed British treasury." It has always appeared to me that one of the dangers of the Manufacturers Association was that it led to dependence upon assistance from outside, and did not look enough toward improving business from the inside. I have never believed in Trusts, nor been a member of a Trust or combination—not because I thought they could do much harm to the consumer over a length of time, as sooner or later the spirit of competition took care of that side, but that the harm came to the consumer because men depended upon the organization in place of trained judgment developed under the stress of necessity. I remember a manufacturer during the War saying "You will fall down in the delivery of munitions unless you pull these infernal munitions inspectors out of munitions plants, as they try to impose all sorts of ridiculous standards upon the manufacturer." I asked the Chief Inspector to send his senior officer to this plant, and to bring back a report. Upon his return, I had the manufacturer join in the conference. Complaints had reached the Board from the British authorities that the ammunition boxes pulled apart under stress because the screws did not hold. The Chief Inspector said, "My officer went into this manufacturer's shop at the finishing end, and inspected the boxing of shells. The workman was driving the screws in the boxes home with a hammer. The inspector asked him 'Do you permit that?' 'Permit what?' came the reply. 'Permit screws to be put in your boxes in that manner?' And for the first time the manufacturer saw it. He said 'You damn fool, what are you doing that for'?" Similar conditions were found all over this man's establishment. The correction of his troubles lay with himself, and did not arise from unreasonable standards set up by the Inspector.

Prior to the War, I was asked to speak in the town of Ayr, where they had a very active Farmers' Organization and Women's Institute. The subject of my address was "Co-Operation," and I fear the Company was disappointed in the type of Co-operation I recommended. The Chairman of the meeting had been one of a group of some twelve hundred farmers, who had gone to Ottawa from all parts of Canada to prefer a plan about something—the nature of it I have forgotten. I said to them, "The Chairman of this meeting was one of a Company who went to Ottawa. I am not passing upon the question, whether what they wanted was right or wrong, but I would desire to say to him, and to you who are farmers present, that if every man in the company who went to Ottawa had in place of going there to seek for remedy, formed themselves into a league, each with his neighbor and he in turn with his neighbour, to fight bad weeds, to cultivate the land better and deeper, to use better seed, and to get rid of their scrub cattle, they would make more money for themselves and add far more to the wealth of the country than by anything which they, or twelve times their number could secure from Ottawa."

Take Labour. We know the abuses under which Labour suffered, and respect the causes which led to the organization of Unions, and the redress of many wrongs made possible only through the pressure of organized Labour, but there has developed an insistence for collective bargaining, the closed shop, the sympathetic strike, and the policy of Ca' Canny. Redblooded men are told that they must lower their output. Any action which through the force of organization levels the good man down, is a menace to society. The control of the spirit and purpose of a man, and his responsibility is with himself, not with his neighbour, his Union, his Group, his Party, or the Combination to which he belongs. It is a frequently forgotten truth from which there can be no deliverance "Whatsoever a man soweth, that shall he also reap." The question was asked long ago "Do men gather grapes of thorns, or figs of thistles?"—acres of thorns or fields of thistles, because they are numerous, give no greater promise of grapes or figs.

There have developed bodies of determined men, in classes, in groups, in associations, in brotherhoods, in Unions, who claim they are righting injustices and relieving society of tyranny. They are found in politics, in industry, in agriculture, in education, and in the Church. They are mostly sincere, and frequently uninformed or misinformed. The onlooker, seeing some of them in action, may be forgiven if he indicates they seem to be chiefly concerned in what they can capture for their theory, for their class, their group, or their organization, whether what they desire to secure presses upon others or not. It would appear they are too commonly possessed of the selfish purposes of the individualist without his creative force or courage. He seeks to create through his own effort, and if he will he can share with others. They depend upon organizations and collective power to force their plans, if they are not willingly accepted. They develop and exploit class consciousness, and determine to have their way if the forces at their command can compel its acceptance. One is inclined to ask—are we setting up another form of tyranny, without the compensating gain of individual responsibility and individual initiative and effort? The community needs both forces—individual initiative present in organized groups which are exponents of opposing views but neither should seek the exclusion of the other.

We are slow to see it, but our problem is not, how shall we obtain our share, but how shall we make something worth sharing; not one solved through capture, but through creation. It was perhaps natural in the reaction from the strain of the war to believe in the possibility of economic restoration along the path of less work and more enjoyment. We have entertained delusive hopes of a high standard of living to be attained with less effort and shorter hours of labor. It will not do. We must travel along the old highway of hard work with ungrudging service, while practising sound economy. This is an asset, not a penalty.

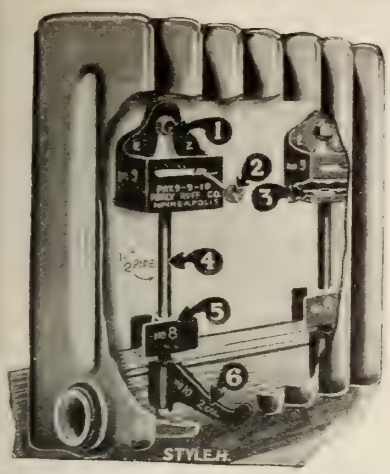
Suspicion, envy, hatred, with consequent unrest, have been unloosed in the world to an unparalleled degree. There is no world deliverance from this and the economic burdens of the war except through individual courage, with patience, individual acceptance of the spirit of obedience, with the individual hard work and determined saving, and with it all cheerfulness. If we have concurrent, purposeful, national and international action, planning for sound economies by Government, re-established exchanges and better understanding between nations, there will follow the gradual emergence from the present state of confusion and distress in Europe. Probably greater progress than known has already set in.

Few Serious Losses

Canada has had few serious losses to bear. We can accept our moderate discomforts with dignity and restraint. We can secure no early relief from heavy taxation.

Slippy McGee said "Parson, think of me leading the brigade down here, keeping up the work, fighting things that hurt, and finding out things that help. Lord, what a chance! A hundred millions to work for, a hundred millions of one's own people, and a trail to blaze for the unborn millions to come. Lord God, that is a man size job!"

There is an honourable place for each man in Canada to do his job as well as he can each day, and that is the way the world's work, which matters, is done.



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Only those who have to live the year around in a locality without city conveniences realize the hardships involved, and it is among these that you can do a profitable business with the

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A city convenience at a fraction of the cost—anybody can afford one. Compactly packed for shipment and easily handled.

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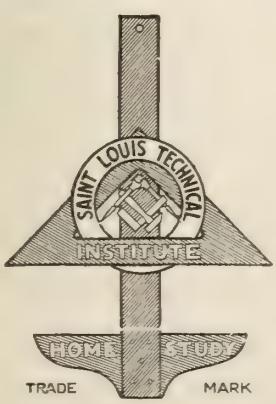

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Hercules Chemical Co., Inc., New York City.
Wolverine, Ltd., Toronto, Ont.
W. H. Cunningham & Hill, Ltd., Toronto.

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W. H. Cunningham & Hill, Ltd., Toronto.

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Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings, Limited, Oshawa.
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Toronto Hardware Mfg., Co., Toronto.
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A. B. Jardine & Co., Hespeler.
W. H. Cunningham & Hill, Ltd., Toronto.

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W. H. Cunningham & Hill, Ltd., Toronto.

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PNEUMATIC WATER SUPPLY TANKS
Empire Mfg. Co., London and Toronto.

PORCELAIN WARE
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

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The Westco Pumps Limited, Toronto.
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Canada Metal Co., Ltd., Toronto.
The Westco Pumps, Limited, Toronto.
Beaton & Cadwell Mfg. Co., New Britain, Conn.

RADIATORS
Gurney Foundry Co., Limited, Toronto.
Lord & Burnham Co., Ltd., Toronto.
Warden King Ltd., Montreal.

RADIATOR HANGERS
Healy Ruff Company.

RADIATOR NIPPLES
Fittings, Limited, Oshawa.

RADIATOR TRAPS (STEAM)
C. A. Dunham Co., Ltd., Toronto.
Grant E. Cole Co., 23 River Street, Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.

RIVETS
Fittings, Limited, Oshawa.

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Standard Sanitary Mfg. Co., Ltd., Toronto. Hamilton.
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Toronto Hardware Mfg. Co., Toronto.

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C. A. Dunham Co., Ltd., Toronto.
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Grant E. Cole Co., 23 River Street, Toronto.

ROOF FLANGES AND FLASHINGS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
Standard Sanitary Mfg. Co., Ltd., Toronto, Hamilton.

SEPTIC TANK VALVES AND SYPHONS
Anthes Foundry Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

SINK BRACKETS
Fittings, Limited, Oshawa.

SOCKETS, WIRE ROPE
J. H. Williams & Co., Montreal, Que.

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Canada Metal Co., Ltd., Toronto.

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Grant E. Cole Co., 23 River Street, Toronto.
C. A. Dunham Co., Ltd., Toronto.
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Kerr Engine Co., Walkerville, Ont.
United Brassfounders & Engineers, Ltd., Manchester, Eng.

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Grant E. Cole Co., 23 River Street, Toronto.
C. A. Dunham Co., Ltd., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.

STOVES
Gurney Foundry Co., Limited, Toronto.

STOVES, GAS AND COAL
Gurney Foundry Co., Ltd., Toronto.

SWIVELS, HOOK
J. H. Williams & Co., Brooklyn, N.Y.

TANKS, STEEL
The Canadian John Wood Mfg. Co., Toronto.

TANK BULBS, (RUBBER)
Canada Metal Co., Ltd., Toronto.
W. H. Cunningham & Hill, Ltd., Toronto.

THUMB SCREWS AND NUTS
J. H. Williams & Co., Brooklyn, N.Y.

TOOLS
Wolverine, Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto. Hamilton.
J. H. Williams & Co., Brooklyn, N.Y.
W. H. Cunningham & Hill, Ltd., Toronto.

TORCHES
W. H. Cunningham & Hill, Ltd., Toronto.

UNIONS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers, Ltd., Manchester, Eng.

VAPOR HEATING SYSTEMS
C. A. Dunham Co., Ltd., Toronto.

VISES, CHAIN, CLAMP, MOUNT
J. H. Williams & Co., Brooklyn, N.Y.

VITRO TANKS
Galt Brass Co., Ltd., Galt.

VACUUM SYSTEMS OF HEATING
C. A. Dunham Co., Ltd., Toronto.

VALVES
Empire Mfg. Co., London and Toronto.
Jenkins Bros., Ltd., Montreal, Que.
The Kerr Engine Co., Walkerville, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.

WATER SUPPLY SYSTEMS
Empire Mfg. Co., London and Toronto.
Standard Sanitary Mfg. Co., Ltd., Toronto Hamilton.
The Westco Pumps, Limited, Toronto.

WASHERS
Canada Metal Co., Ltd., Toronto.
W. H. Cunningham & Hill, Ltd., Toronto

WASHING MACHINES
Gurney Foundry Co., Ltd., Toronto.

WRENCHES, SET, DROP FORGED, ENGINEERS, SOCKET AND CHAIN PIPE
J. H. Williams & Co., Brooklyn, N.Y.

WROUGHT COUPLINGS AND NIPPLES
Canada Metal Co., Ltd., Toronto.
Fittings, Ltd., Oshawa.

USE

TESTED Soil Pipe

IT COSTS NO MORE AND YOU KNOW THE JOB IS RIGHT

Manufactured by

FORWELL FOUNDRY, LTD.

KITCHENER, ONT.

SANITARY ENGINEER'S

unique circulation as proven by the A.B.C. Audit is due to our honest effort to give the retail trade the best possible service.

WROUGHT PIPE

Suitable for the approaching period of building activity, road construction, etc. This is a line of great importance in making successful, profitable contracts Our C. T. Brand of Wrought Pipe has been

THOROUGHLY INSPECTED

by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes ⅛-in. to 4-in. Black or Galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your Jobber for C. T. Brand Wrought Pipe

Canadian Tube and Steel Products Co., Ltd.

Operating Canadian Tube and Iron Co., Limited
Works at Lachine Canal, Montreal

Quality The Beaton and Cadwell Mfg. Co. New Britain, Conn. Service

There's Nothing More Useful

—than a good floor and ceiling plate.

Here is your chance. No. 10-A Narrow Flange Plate is a Steel Hinged Plate, Flanges ¾" wide. Highly finished.

Especially designed for twin connection "Narrow." Can be attached to mains and risers at the very last.

Gem No. 4 Automatic Air Valve

Made of the best brass obtainable. Equipped with high grade carbon. Guaranteed.

Catalogue sent on request.

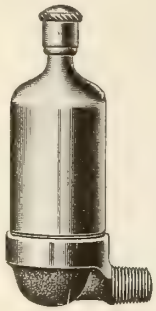
The Beaton & Cadwell Mfg. Co.
New Britain, Conn.

EASTERN AGENTS:
J. R. Devereaux & Co., 662 New Birks Bldg., Montreal

ONTARIO AGENTS:
L. N. Vanstone, 8 Wellington St. E., Toronto, Canada.

WESTERN AGENTS:
A. E. Hinds & Co., Galt Building, Winnipeg.

John E. T. Yewdall, Company, Vancouver, B. C.



GEM No. 4

THE TRADE
Is Respectfully Cautioned
to specify

RIVETED RANGE BOILERS

Made by the old reliable

TORONTO HARDWARE MFG. CO., LIMITED

The Classified Column.

2 Cents a word or figure
Minimum $1.00.

ADDRESSING MACHINE FOR SALE—WE HAVE A COMPLETE Belknap Addressing Equipment for sale. This equipment is still in use in our Subscription Department and is in excellent working order. We have placed an attractive price on this outfit, and would advise manufacturers or merchants having a mailing list to let us tell you how it will save you money. We will give a guarantee as to the proper working condition of this equipment. The MacLean Publishing Co., Ltd., 143 University Avenue, Toronto, Ontario.

TAYLOR SAFES FOR SALE—RARE OPPORTUNITY TO secure a safe at small cost. They are in splendid condition. Inside dimensions and prices are as follows: 15" deep, 2 ft. 6" wide, 3 ft. 11½" high, fitted with built-in- compartment. Price $250.00. 18" deep, 2 ft. 8" wide, 4 ft. 5" high, fitted with steel compartment. Price $200.00. Apply Box No. 701, Sanitary Engineer, Toronto.

CASH IN ON THIS COLUMN

Want to sell your Business?
Want a partner with Capital?
Want some good used equipment?

Sanitary Engineer's

CLASSIFIED COLUMN
WILL HELP SOLVE
YOUR PROBLEM—

SEND ALONG THAT AD TODAY

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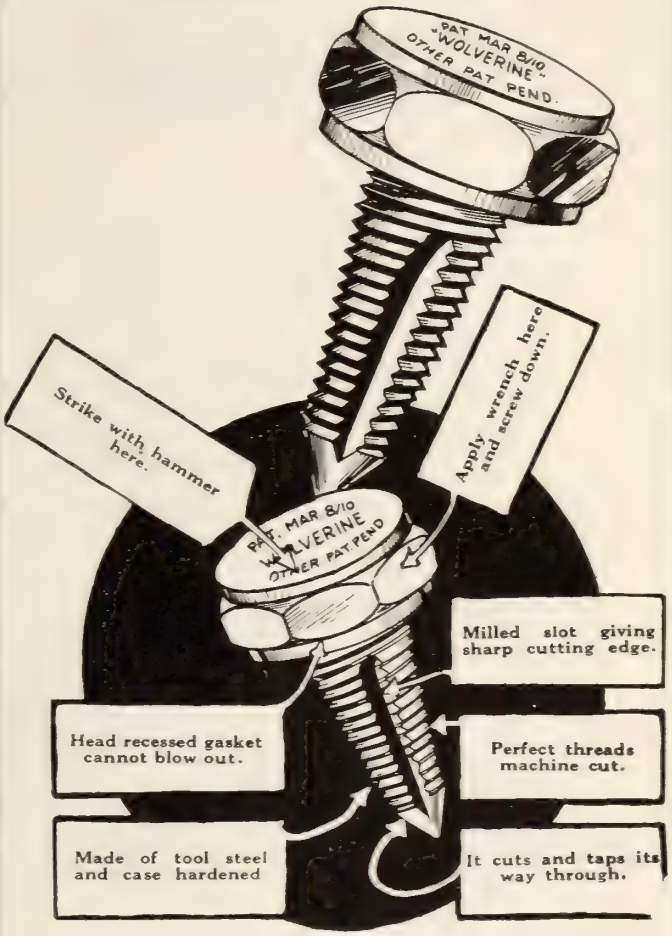
WOLVERINE TAP PLUGS AND TOGGLE REPAIRS

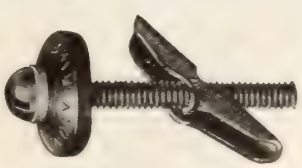
Stop leaks in
Pipes, Radiators, Boilers, etc.


PAT. MAR 8/10
"WOLVERINE"
OTHER PAT. PEND.
Strike with hammer here.
Apply wrench here and screw down.
Milled slot giving sharp cutting edge.
Head recessed gasket cannot blow out.
Perfect threads machine cut.
Made of tool steel and case hardened
It cuts and taps its way through.

Service Plug For
Temporary and Permanent Repairs

WOLVERINE LIMITED

76 Nelson St. Toronto



Every Plumber Should Stock
Wolverine Tap Plugs and Toggle Repairs
They Represent Service and Profit

WOLVERINE For Quality Rubber Lines
and Specialties

Your Chief Prospects for BUSINESS IN 1923

What will the nature of next year's construction be?

What will the nature of next year's construction be? Some say building will be confined to office and industrial work and that house building has run its course this year. But—those in close touch with the situation have very different views, and we are publishing them in the next—the Dec. 1st issue of Sanitary Engineer.

You Know Me Al

Major Laurie Anthes—whose articles in Sanitary Engineer have caused much comment—has done it again. Done what? Why, brought Ring Lardner's "You Know Me Al" to the pages of this paper. Al becomes a plumber and says:—"A plumber is one of them fellers what makes water run upstairs."

'Nuff said—Watch for the Dec. 1 issue.

Did you ever figure on a rural school job?

Did you ever figure on a rural school job? Water supply, plumbing and sewage disposal for a country school to accommodate 800 pupils is figured out in detail in the Dec. 1st number.

Some punch for your newspaper advertising copy.

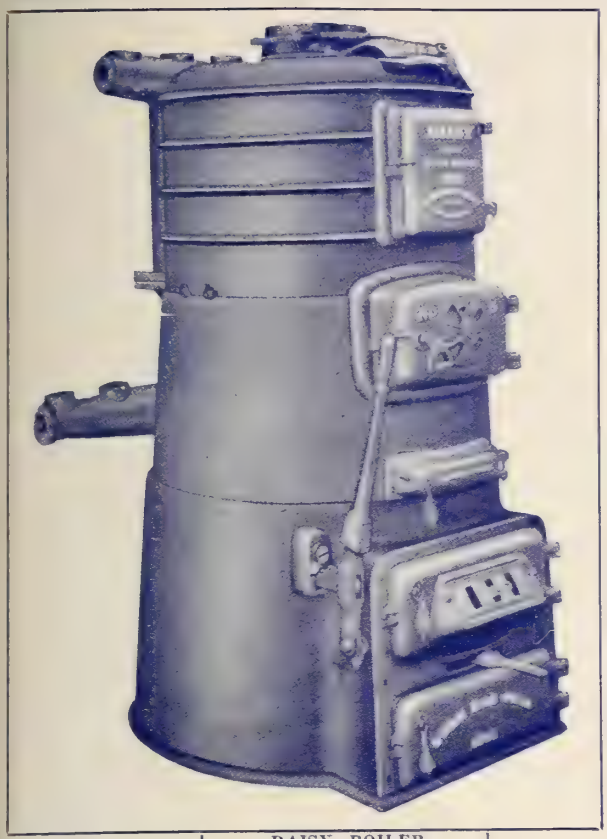
Layout of water system for rural school of 400 pupils.
Heating and ventilating plans for a large school.

Some punch for your newspaper advertising copy.

Layout of water system and sewage disposal for a rural school of 400 pupils.

Heating and ventilating plans for a large school.

WATCH FOR THIS BIG ISSUE of Sanitary Engineer on Dec. 1st



DAISY BOILER

The Little Things

Nearly all good boilers are built to a certain standard and give a certain amount of service.

But there is service and *super-service;* and the difference is measured by a host of little things.

Little bits of painstaking care, little bits of refinement, little bits of extra effort. These little things are what measure the difference between stolid acceptance and delighted satisfaction. They are found in

Daisy Boilers
and
Viking Radiators

No Guess Work About a Hot Water System

You **know** that hot water heating is the most certain and healthful system ever invented. Hot water heating is practicable in either castle or cottage and the sale and installation of our system is profitable business for you.

Send us the specifications for your next job.

THE VIKING RADIATOR

WARDEN KING, Limited, Montreal

Branch Office : 136 Simcoe St., Toronto

Beauty

Someone has said that "Beauty is its own excuse for being"—
but in the New Design Vitro we have thrown it in —an afterthought as it were—when we had finished building the finest tank we knew how.

That beauty and efficiency when combined, make an irresistible sales combination is proved by the fact that more Vitros are being sold to-day than any other tank on the market.

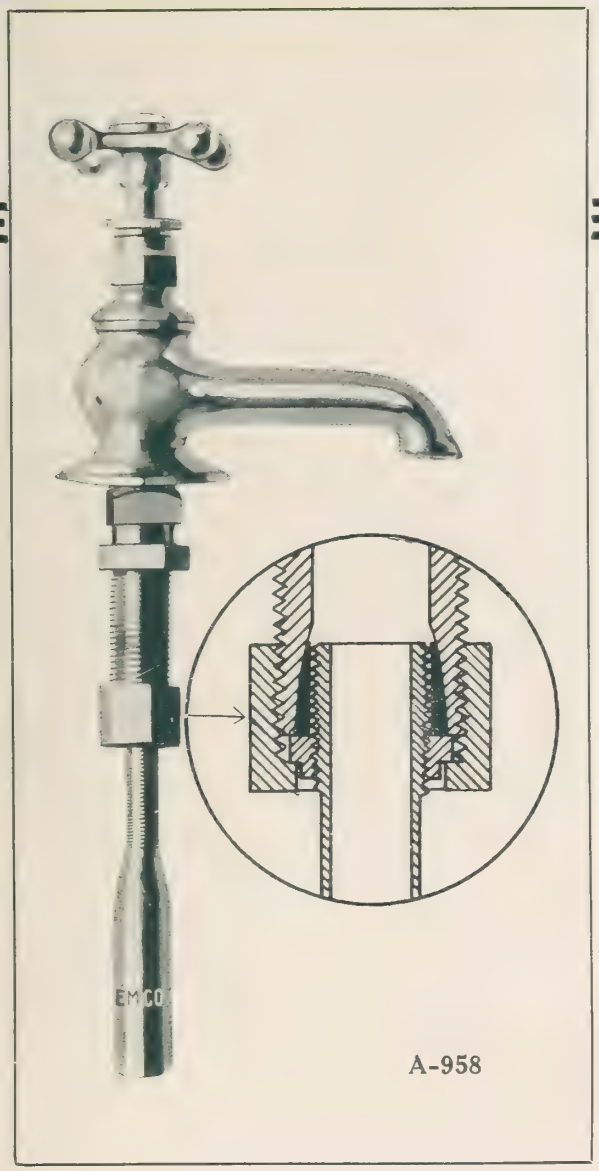
Your Jobber sells them.

Galt Brass Company, Limited
GALT ONTARIO

VITRO
NO TROUBLE
TANK

Sanitary Engineer
Plumber and Steamfitter of Canada

Vol. XVI. PUBLICATION OFFICE, TORONTO, DECEMBER 1, 1922 No. 23



A-958

"Emco"

Adjustable Basin Supply

The "Emco" A-958 Adjustable Basin Supply is proving a big labor saver to a multitude of users. The joint at the cock is adjustable and is made absolutely water-tight by means of a cone rubber washer.

If your roughing in is not absolutely perfect the regular brass to brass seat will not make a tight joint. Avoid trouble by using our **Adjustable** Supplies—they are a great labor saver.

The diagram in the circle shows how the joint is adjustable and how it is held securely in position by the screw collar. There is no possible chance of the supply pipe slipping out.

"Emco" Products are carried by the best jobbers

Empire Brass Mfg. Co., Limited

London and Toronto, Canada

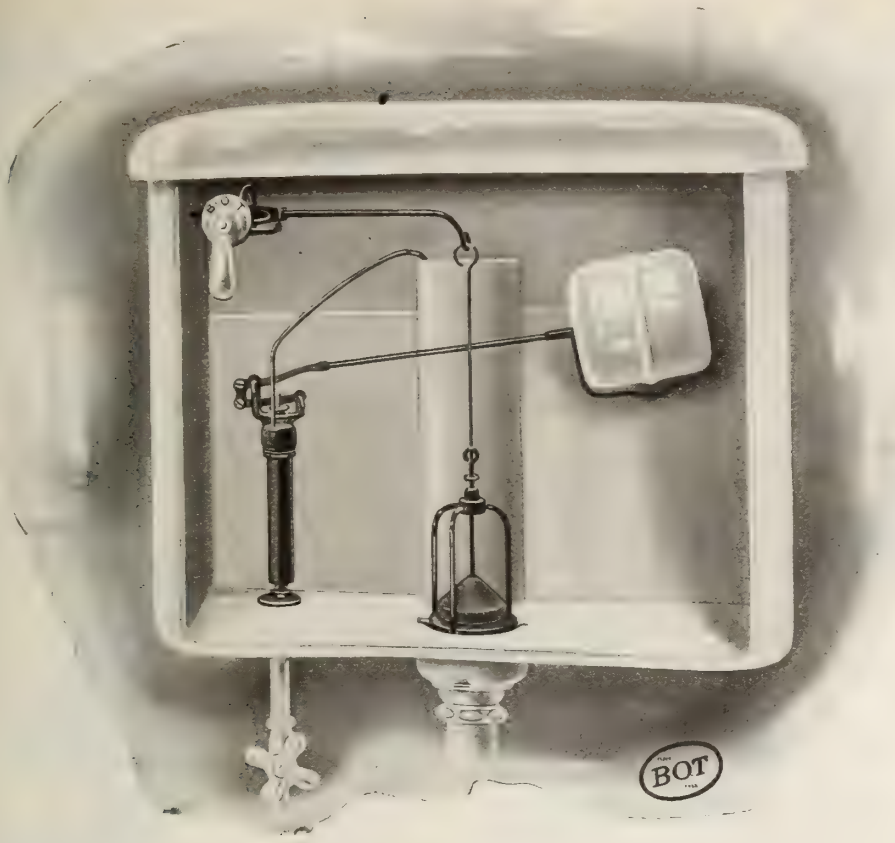
Include Refinement in Your Service by Selling the QUIETUS

OUR NO. 20 "Quietus" Syphon Jet closet as its name implies is of the so-called "silent" type. It operates so quietly that its action when flushed cannot be heard outside of its immediate environment; yet it possesses the same unhesitating strong action for which all Canadian Vitreous closets are noted.

IT is modelled on simple dignified lines; it is vitreous through and through and its lustrous shimmering white-glazed surface coupled with its special attribute of real quietness of operation commends it to the discriminating buyer who would include the utmost of refinement in his choice of toilet-room equipment.

CANADIAN POTTERIES
LIMITED
SAINT JOHNS
QUEBEC

Sales handled exclusively through recognized jobbers in plumbing supplies.



B.O.T.
"BUYIT"
COMBINATION

(Something new and attractive)

Canadian Patent No. 262322

Specification:

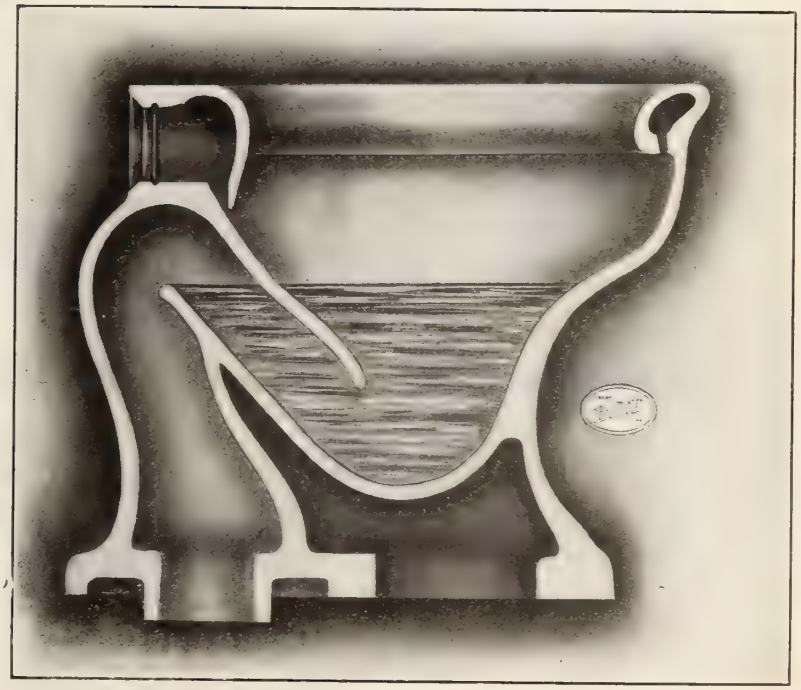
"Buyit" Vitreous China heavy tank with patent Integral Overflow, patent revolving China Float, "B.O.T." Ballcock, patent non-overflow Valve "B.O.T." Lever, nickel-plated Bend and Nuts, nickel-plated plain Supply Pipe.

B302 Blanco Seat and Cover with nickel-plated Bar Hinge.

No. 375 "B.O.T." patent Bowl with 2-inch Spud and Floor Flanges.

(Sold only as a Combination) (Can be furnished with any "B.O.T." Seat).

We invite every Sanitary Engineer in Canada to show interest in our courage in placing on the market something which is an absolute departure in Closet Tank construction by either criticism or installing an outfit. By doing the latter we are prepared to let the combination take care of repeat orders. By doing the first named you give us (what is our just privilege) an opportunity of pointing out our claims for this Combination which cannot be done within the scope of an advertisement.



Yours with efficiency and service and something modern.

Canadian Brass Co., Limited

(Head Office) GALT

(Branch) TORONTO

Only Nobles had Baths in Ancient Rome

The Roman citizen had of necessity to resort to the public bath

It was only in the homes of the rich and the noble that a private was to be found.

And, in the light of present day sanitary equipment, it was a very crude, cumbersome and unsatisfactory bath that even the Roman nobility enjoyed.

To-day **"Standard"** bathroom fixtures—the last word in beauty, utility and worth—are available to the home of every man with an average income.

To-day **"Standard"** dealers can offer to their customers inexpensive conveniences and luxuries of which Caesar never dreamed.

To-day the **"Standard"** dealer by window display, by local advertising, and by personal solicitation, can capitalize this good-will and prestige.

He can by dint of go-get-it salesmanship bring these modern sanitary conveniences into the homes of his prospects and in so doing make a healthier community as well as a generous profit.

Standard Sanitary Mfg. Co.
Limited

General Office and Factory : Royce and Lansdowne Aves., Toronto, Ont.

Toronto Store:
55-59 Richmond Street East

Winnipeg Showrooms:
145 Market Street East

Montreal:
New Birks Bldg.

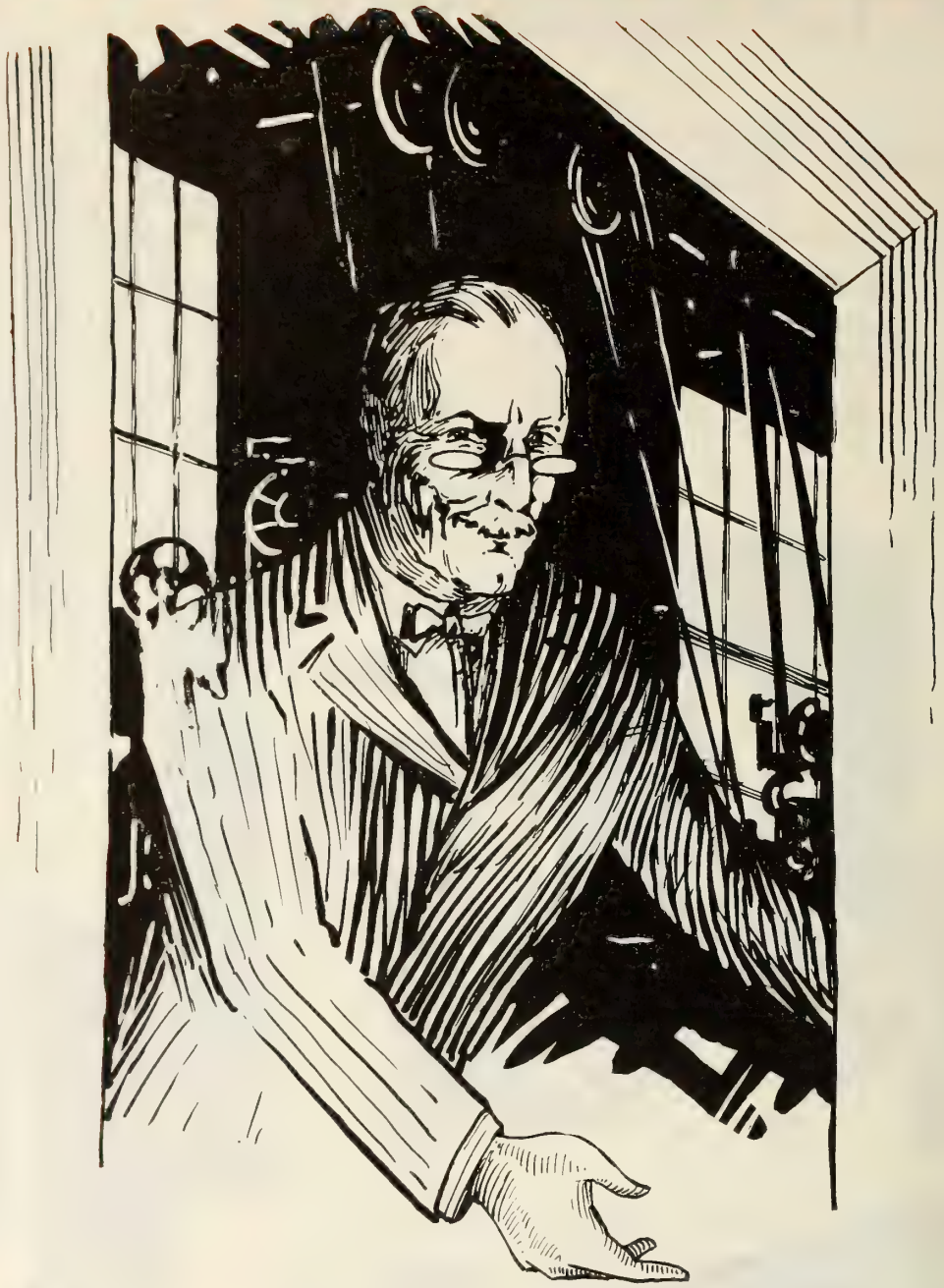
Calgary:
354 11th Ave. West

Hamilton Store:
26-28 Jackson Street West

Vancouver:
860 Cambie Street

"MADE IN CANADA"

in



Pilc

Yours for better furnaces
Pilot Pete

The Hall Zryd Foundry Company, Limited

Manufacturers of Pilot Stoves, Ranges and Furnaces

HESPELER - ONTARIO

Western Branch: Post Office Box 687, Winnipeg, Manitoba

ete Greets Some Visitors

It is always a pleasure to show folks through the plant.

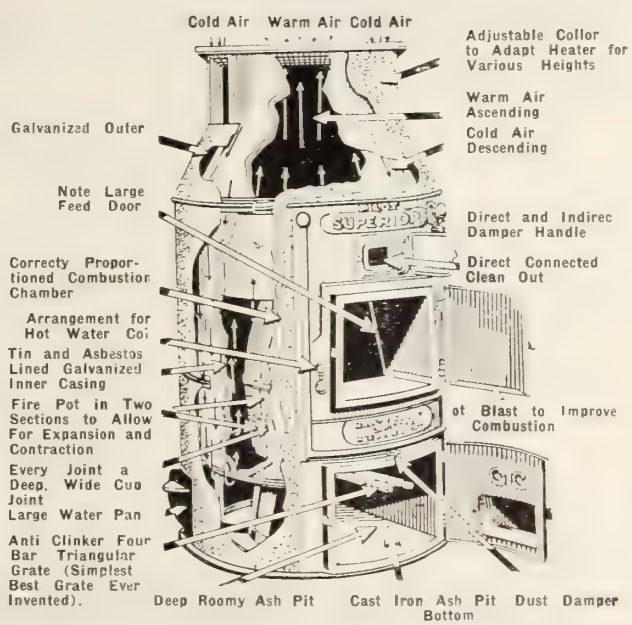
hey enjoy seeing the various stages of manufacturing and I get a chance to indulge in ny pet hobby—that of talking about the Pilot Pipeless Furnace.

was telling a heating engineer the other day that he could double his sales of Pilot ipeless Furnaces by suggesting their use as auxiliary heaters.

Many buildings are never quite warm enough—the heating equipment is not adequate. o overhaul the whole system would be too expensive and so this unsatisfactory state of ffairs goes on from year to year. In places of this kind a Pilot Furnace would at little xpense, supply the needed extra warmth.

further use of the Pilot Pipeess as an auxiliary heater ould be made in early fall nd again in spring when a udden cold spell calls for a ertain amount of warmth. At uch times its use will save the xpense and bother of starting ne steam heating plant.

ll be glad to send you without obligation, plans which ill guide you to much profitble business.


Cold Air
Warm Air
Cold Air
Adjustable Collor to Adapt Heater for Various Heights
Warm Air Ascending
Cold Air Descending
Galvanized Outer
Note Large Feed Door
Direct and Indirec Damper Handle
Direct Connected Clean Out
Correcty Proportioned Combustior Chamber
Arrangement for Hot Water Coi
Tin and Asbestos Lined Galvanized Inner Casing
Fire Pot in Two Sections to Allow For Expansion and Contraction
ot Blast to Improve Combustion
Every Joint a Deep, Wide Cup Joint
Large Water Pan
Anti Clinker Four Bar Triangular Grate (Simplest Best Grate Ever Invented).
Deep Roomy Ash Pit
Cast Iron Ash Pit Bottom
Dust Damper

Few people realize the tremendous selling power of classified advertising or the exceptional opportunity which it offers.

Hundreds of Sanitary Engineers to-day are carrying equipment for which they have no further need, yet many others could use this same equipment to good advantage and would be glad to buy at a fair price, if they but knew of it.

How to get buyer and seller together — that's the question. The answer is—SANITARY ENGINEER classified advertising service. Thousands of Sanitary Engineers throughout the country read the classified advertisements every issue. That's why they produce results surely and quickly.

If you want to buy, sell or exchange equipment.

If you want to sell or exchange your store.

If you want to buy a store.

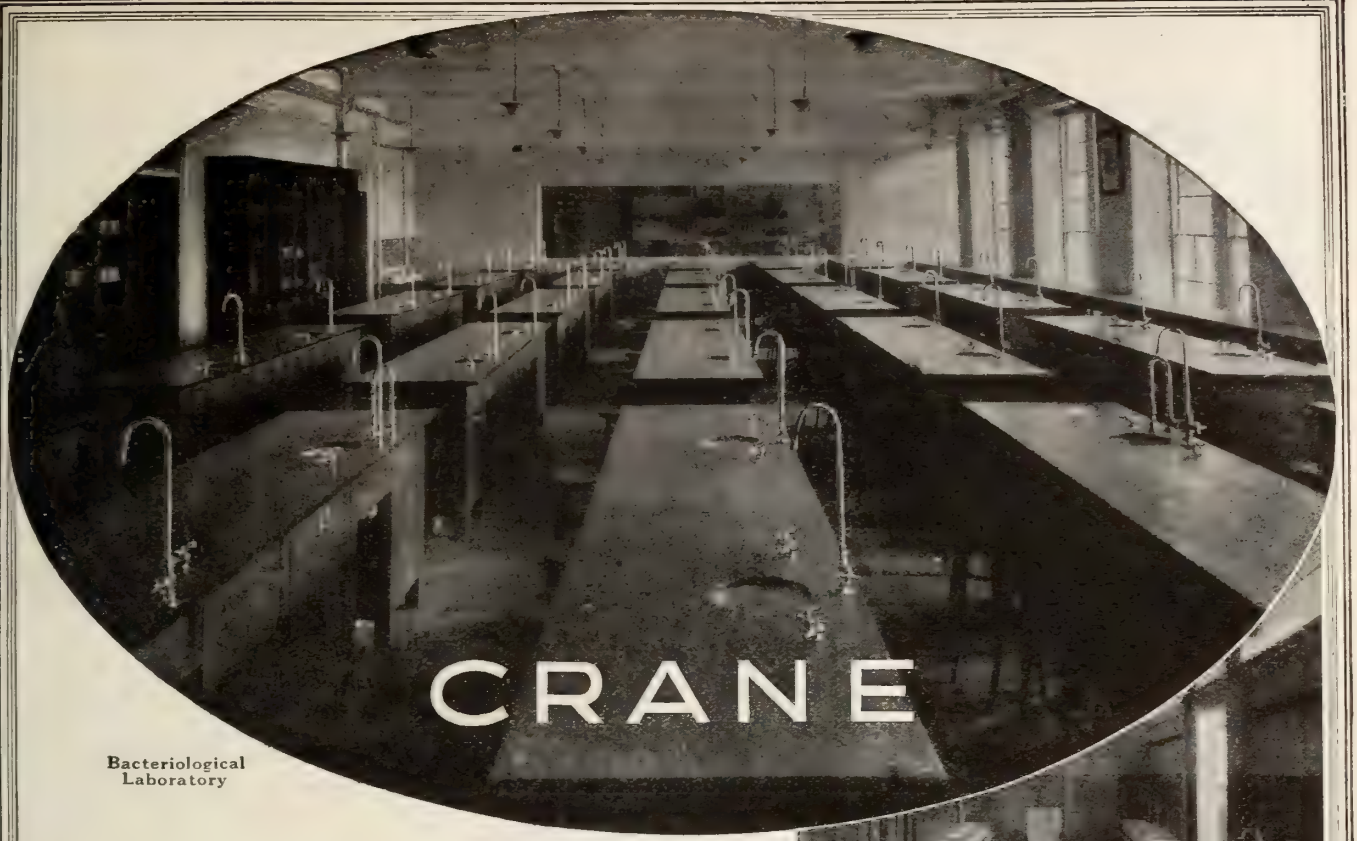
If you are looking for a location.

If you need a competent journeyman.

If you are seeking a position.

In fact if you wish to buy, sell or exchange anything used in a plumbing and steamfitting shop or for any reason desire to quickly get in touch with other Sanitary Engineers, use SANITARY ENGINEER'S classified advertising service. The charge is ridiculously low—$1.50 for twenty-five words, 5 cents for each additional word.

Look For The Classified Column on Page 50



Bacteriological Laboratory

THE exacting requirements of the sanitation equipment of hospitals, medical colleges, etc., have led to the development of a special line of

CRANE
Hospital Fixtures

There are included emergency baths, continuous flow baths, infants' baths, marble controlling tables, autopsy tables, electric light bath cabinets, shower baths, surgeon's lavatories, surgeon's sinks, clinic slop sinks, etc.

Annex to Dissecting Room

Manufacturers of Valves, Fittings and Piping Equipment for all pressures and purposes—and Distributors of Pipe, Plumbing and Heating Supplies.

Branches and Warehouses:
HALIFAX, OTTAWA, TORONTO, HAMILTON, LONDON, WINNIPEG, REGINA, CALGARY, VANCOUVER.

Sales Offices:
ST.JOHN,NB.,QUEBEC,SHERBROOKE EDMONTON, VICTORIA, SYDNEY, AUSTRALIA.

CRANE
LIMITED
HEAD OFFICE & SHOW ROOMS
386 BEAVER HALL SQUARE
MONTREAL
Works
1280 ST. PATRICK ST.
MONTREAL

CRANE-BENNETT
LIMITED
Head Office and Warehouse:
LONDON, ENGLAND.

Sales Offices:
BIRMINGHAM, CARDIFF, GLASGOW, LEEDS, MANCHESTER.

You are cordially invited when in Montreal to make the Crane Exhibit Rooms your headquarters.
We will be glad to receive any mail addressed to you in our care. 12a

Use Anthes

And make

The difference in initial cost between tile pipe and good soil pipe marked with Anthes name is very, very little.

Yet, too often sanitary engineers fail to advise their customers that it is shortsighted, extravagant folly to lay tile pipe where soil pipe should be used—merely to save a few immediate dollars.

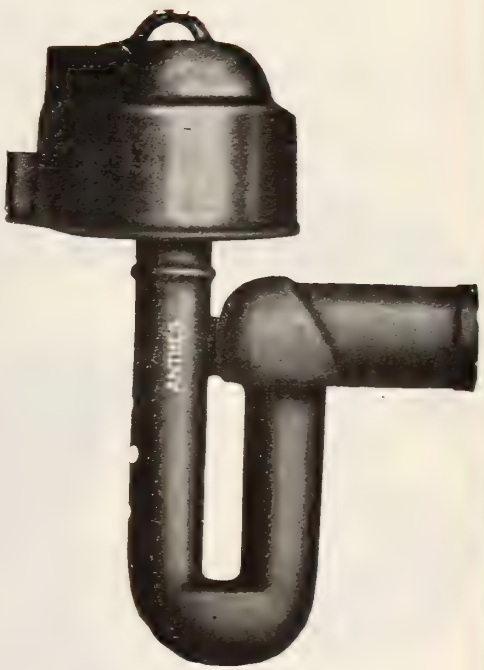
Anthes soil pipe, properly laid, will endure for a generation without repairs. It is the cheapest pipe—by far—in the end.

Cast Iron Soil Pipe

it a "Lifetime Job"

See that the name "Anthes" is on every piece. It is your guarantee of all that is best in Soil Pipe and fittings.

The Anthes Syphon is the heart of the disposal system. It has no seams, no joints, no moving parts. Built on natural principles it operates as surely and efficiently as Nature's laws.



Anthes Foundry
Limited

Toronto and Winnipeg

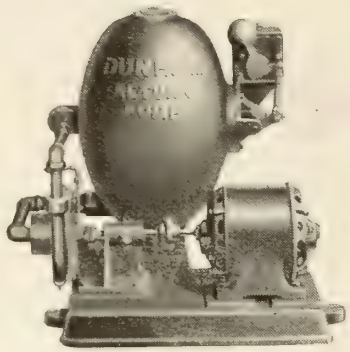
Manufacturers of

Cast Iron Soil Pipe and Fittings

The DUNHAM HEATING SERVICE
REG. TRADE-MARK

(Made in Canada)

Handling Condensate
with the
Dunham Return Pump



TYPE R.L.P.

The Dunham Return Pump is absolutely automatic in action. It operates without attention day or night. There are none of the difficulties caused by low pressure steam pumps when fires are banked for the night.

The Dunham Return Pump is designed to automatically pump condensate from heating systems, or process work, back to boiler, heater, hot well or other storage. It is an automatic, electric driven, centrifugal pump, stopped and started from a float switch.

The waste of condensate from heating systems where returns are below the boiler water line can be entirely eliminated by the use of the Dunham Return Pump. The condensate from the heating system is returned to the boiler as it accumulates, resulting in improved heating and a saving of fuel.

Full particulars will be sent upon request.

C. A. DUNHAM CO., Limited,
TORONTO ONTARIO

Manufacturers of a popular line of Heating Specialties.

Halifax, Vancouver, Winnipeg, Ottawa, Montreal, Calgary.
London: 18 St. Thomas Street, S.E. 1.

FITTINGS LIMITED
OSHAWA, CAN.
MANUFACTURERS OF
"DIAMOND" PIPE FITTINGS

BEAVER BRAND
Porcelain Enamel Ware
—*Your Guarantee of Quality*—

Beaver Brand Enamelware by its ability to meet the highest demands for service under all conditions, has established itself in the confidence of the public to such an extent that each month witnesses an ever-increasing demand for products of Beaver manufacture.

Amherst Foundry Co., Limited

General Offices and Factory : Amherst, N.S.

Agents :

ONTARIO:
Monarch Brass Mfg. Co.
71 Brown St., Toronto

MANITOBA AND NORTHWEST:
E. B. Plewes
197 Princess St., Winnipeg

"I'm Always Sure of JENKINS VALVES!"

Men who know Valves know that the installation of genuine Jenkins assure long, satisfactory service and — of course — satisfaction for the man who pays the bill.

In the Jenkins line there's a type and a size for every requirement of Plumbing, Heating and Power Plant service.

Write for descriptive literature.

FIG. 106.
Jenkins Brass Globe Valve.
Standard Pattern.

JENKINS BROS., LIMITED

103 St. Remi Street, Montreal

TORONTO VANCOUVER

European Branch: 6 Great Queen St., Kingsway, London, W.C.2, Eng.

Kerr Steam Radiator Valves

If you want a real high-grade valve made from the best materials, choose one bearing the name "Kerr."

Discs are of special quality and the hand wheels are as good as can be procured.

No possibility of freezing; seats are so located as to prevent the retention of water in the valve around the seat when steam is shut off and condensation takes place.

Make sure of getting satisfaction by buying this valve.

NO. 34.

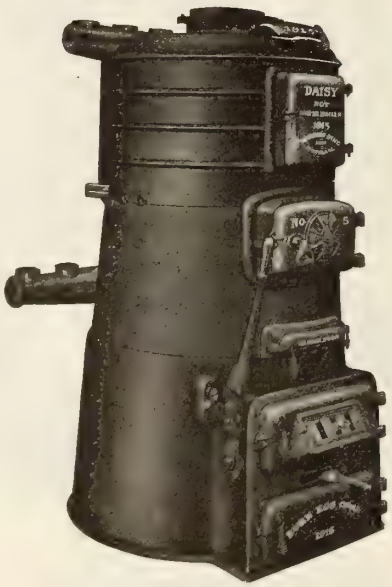
The Kerr Engine Co., Limited

Valve Manufacturers - Walkerville, Canada

4 Points In Its Favour 4

1 Nets the Plumber and Steam-fitter big profits.

2 Can be recommended by Plumber and Steam-fitter as a fuel saver.



The Daisy

3 Heating capacity fully guaranteed by makers if sold according to specification needs.

4 Assures the Plumber and Steam-fitter of fully satisfied customers.

WARDEN KING, Limited, Montreal

Branch Office : 136 Simcoe St., Toronto

SANITARY ENGINEER
PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907 PUBLISHED TWICE MONTHLY

Vol. XVI. PUBLICATION OFFICE: TORONTO, DECEMBER 1, 1922 No. 23

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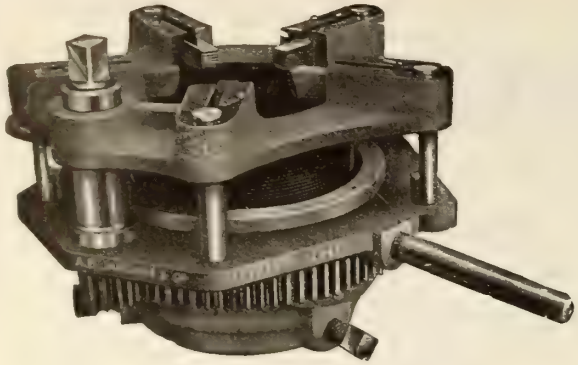

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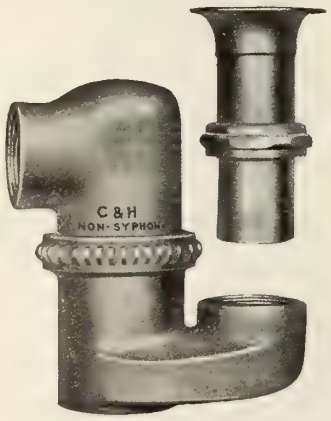

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"Big Opportunities Being Overlooked"

Some Plumbers Looking for Prospective Business to Develop in Other Fields When Golden Opportunities Lie Right at Their Doors, Says a Manufacturer—Says There Will be Apartment Houses Built in Larger Cities Next Year and House Building Will Extend to Smaller Cities and Towns

DISCUSSING the outlook for business in sanitary equipment for the first part of the coming year, a prominent manufacturer and wholesaler of plumbing equipment who has made somewhat of a study of prevailing conditions and the probable tendency in the near future, had some interesting things to say to Sanitary Engineer, and these are being passed on to readers herewith.

The building season of this year has seen much activity along the line of house construction in certain of the large cities. This has led some so-called authorities to publicly express the view that next year construction will run to larger buildings such as office buildings and industrial plants. This idea has been given wide-spread publicity until it appears to be quite commonly accepted in the larger centres of population. However, reports consistently coming to hand from plumbers and heating engineers in the smaller cities, towns and rural districts that this was not the condition with them, caused an investigation into the true situation. This investigation showed that there was still a lack of sufficient house construction in the smaller centres and that the feverish building activity of houses in the larger cities was far from general.

Nature of Building in 1923

This manufacturer of plumbing supplies is of the opinion that next year will see the extension of the house building campaign to the smaller cities, towns and rural districts. He does not think there will be much construction of office buildings because of the fact that there has been difficulty renting offices in recent buildings of this nature finished in certain larger cities. Then, too, it was the opinion that business will stand for much greater expansion than has been the case, before the accommodation both in industrial plants and office buildings will be found inadequate. There are some cases where industrial concerns report production on such a scale as to shortly necessitate large plants, but these are the exceptions rather than the rule and it was thought the development of business in the near future would be very gradual.

It is not expected that building activity will be at a total standstill in the cities as result of this condition. It is the opinion of this manufacturer that there will be considerable construction of apartment houses in the cities early next year. These are thought to be more or less necessary to relieve the congestion which is known to exist and also in view of an increasing tendency for people to rent than to buy homes. This is a natural outcome of the prevailing business condition and the fact that many of the homes built in large numbers on a speculative basis this summer are still unoccupied, confirms it.

Thus, from this survey, building construction next year is likely to involve houses of the average standard in smaller cities and towns where there has been no great activity in such construction this year, and in the larger cities there will be building of apartment houses, fair business in private dwellings and perhaps some industrial construction.

This manufacturer is of the opinion that plumbers would do well to concentrate their attention upon the merchandising of equipment in the municipalities where water systems are now installed, many of them just recently completed. There were said to be many such municipalities as Dundas, Ont., where water facilities are now available, with connections laid into private properties, and where very few, if any, complete sanitary installations are to be found in the homes.

"This is the cream of all business for the plumber who can show property owners and tenants the advantage of having modern sanitary equipment in their homes," said this manufacturer, pointing out that with connections all ready the plumber can give definite estimate on length of time to instal, cost, and show in a tangible form the advantages. In some municipalities where such service has now been made available, such as in Elmira, Ont., plumbers report very active business putting in water and sewage disposal systems. In other cases no advantage is being taken of the work which the municipality has done.

This manufacturer is of the opinion that the work being done by the agricultural colleges and other bodies to educate farmers to a higher appreciation of sanitary equipment on their properties will bring splendid results, especially with the rising generation of farmers who will become so accustomed to having such facilities that they will not be without them at any cost. He expressed the opinion that it was unprofitable for some plumbers to endeavor to secure business of this nature out in the sparsely settled districts. In such cases he thought it better to let such educational work do its part and gradually bring such prospects to the plumber. Of course there are well settled rural districts where some intensive work can be done, but this manufacturer was inclined to the belief that there was sufficient profitable business to be secured in the municipalities where water systems have been installed, to keep all plumbers active and by the time there is need to develop other fields, facilities may be provided for rural sanitation so that the present tank system will not have to be employed for sewage disposal. This manufacturer expressed the belief that while such systems adequately meet to-day's requirements, they are not as desirable in the interests of public health as is a modern waterworks system.

(Continued on next page)

Asked for an opinion concerning the practice of municipalities or provincial governments granting time payment privileges, this manufacturer did not think such a plan worked out to best advantage in municipalities where it is now being practiced. It was his opinion that such a plan encourages the installation of a cheap class of fixtures which do not add materially to the value of the property which is the security held for the loan.

"The best business the plumber gets is that which he goes out and works up himself. When he sells a prospect on the fundamental principles of good sanitary equipment the price is secondary and the customer is better satisfied as time goes by than if payments for the equipment are continually due and the equipment is of a cheap grade that fails to maintain their interest," he said.

He also pointed out that the matter must be carried further than is usually the case where fixtures are sold on such a wholesale plan is under the part payment system. The question of poor heating in the farm home with consequent danger to plumbing must be considered.

The increasing tendency of property owners to put two bathrooms in the house where formerly it was the custom to have one, was pointed to as one which plumbers can help to develop to good advantage. There is also more tendency now toward renewal of plumbing installations where necessary.

The building which is to be done next year is likely to commence early in the year due to an anticipated lowering of prices of building material prices at that time, according to this manufacturer. Thus with apartment and some house building in the larger cities, extensive house building in smaller communities, and some industrial construction combined with the business which plumbers can develop in replacements, and new installations where waterworks facilities are now available, the prospects were said to be good for those who go aggressively after it and who work along the right lines.

Ontario Government Will Help Farmers to Pay for Installation of City Conveniences

Outline of New Plan of Ontario Government for Enabling Part Payment of Cost of Installing Modern Plumbing and Heating—Ontario Government Leads the Way and Farmer Must Carry Out Conditions of the Act

By EDWIN NEWSOME, Lecturer on Rural Sanitation, etc., for Department of Agriculture of Ontario

MUCH has been said and written of late about installing plumbing fixtures in farm and rural homes on the instalment plan, and a certain degree of success has been attained no doubt. Many of the conditions, however, meant that the full amount of purchase had to be paid in one year or less.

Then certain chattel mortgages had to be accepted and given, which to some people would not be very agreeable, because of the fact that to grant a chattel mortgage and to make one legal, the said mortgage would require to be registered. This made the transaction rather too personally public. Many persons of course would not object to such publicity, and therefore have had sanitary plumbing and water supply systems installed in their homes.

Ontario Government Goes One Better

The writer has for many years taken a great deal of interest in rural sanitation, being thoroughly convinced that the largest field for business for sanitary engineers could be developed among farmers, and learning that in May, 1921, an Act of Parliament was assented to by the Legislative Assembly of the Province of Ontario, entitled "The Agricultural Development Act," and that loans would be granted to farmers on certain conditions. The matter was taken up with those connected with the working out of the act, and it was found that money can be loaned to farmers for the purpose of paying for the installing of plumbing, water systems and sewage

disposal systems. There are certain clauses and sections in the act governing all such plans, but upon perusing same, none can be found objectionable. It may be that the "Board" will need to be furnished with complete plans and specifications of the proposed work and the value of same. Just a few details will have to be given in answer to questions submitted by those officials appointed to look into such matters. There never was such an opportunity offered to both farmers and those who sell and install farm bathroom water supply systems and sewage disposal works.

Extracts From the Act

1st. This Act may be cited as **"The Agricultural Development Act, 1921."**

2. In this Act—

(a) "Board" shall mean Agricultural Development Board; (b) "Minister" shall mean Minister of Agriculture.

3. (1) There shall be established a board to be known as the Agricultural Development Board, which shall consist of three persons to be appointed by the Lieutenant-Governor in Council.

(2) The Board shall be a body corporate.

4. It shall be the duty of the Board to promote agricultural development by means of loans as hereinafter provided and in **such other manner as the Board may deem advisable.**

Then there are conditions described in 20 more sections and sub-sections bearing upon the question, and which require to be thoroughly understood.

For example, one sub-section requires that all applicants must be British subjects and have had 3 years' experience in farming, also be actually engaged in farming and agricultural development. That he be of good character, and has displayed average ability and capacity and so on.

Another section requires that all buildings shall be insured to their full insurable value. And regarding payments, these shall be of such proportion that both interest and principal shall be taken care of at specified times. As a matter of fact there is no logical reason why every farm home in Ontario is not at some near future date fitted up completely with all city conveniences as regards sanitary equipment, heating, water supply and sewage disposal systems.

Full details can be procured by writing to the Ontario Agricultural Development Board, 5 Queens Park, Toronto.

Seizure of Flush Valves by Customs

Large Quantity of Flush Valves Made by Sloan Valve Co., of Chicago, Held by Canadian Customs—Said to Have Been Breach of Marking Regulations—Action May be Taken Also Under Dumping Act—Ignorance of Regulations is Claimed

EDITOR'S NOTE:—The seizure by the Canadian Customs Department of a quantity of flush valves, some of which it is said were in the possession of the Canadian branch of the Sloan Valve Co., Ltd., 67 Adelaide St. East, Toronto, and others of which were in the hands of certain plumbing supply firms, has led to much wild speculation among the trade and the facts have been overlooked. In order to present the true facts of both sides of the question Sanitary Engineer interviewed a Customs official handling the case and also the Canadian manager of the Sloan Valve Co. Following is the information secured:

THE Sloan Valve Co. Ltd., located at the foregoing addresss in Toronto is said to be the Canadian branch of the company the head office of which is in Chicago. The firm manufactures flush valves and has been doing business on these valves in Canada for some twelve years. Up until July, 1921, no Canadian office was opened, but at that time the Canadian company was formed and incorporated, the idea being subsequently to enter upon manufacture in Canada. The flush valve had been protected by patents, it is said, but through not entering upon manufacture of the valve in Canada during the two years allowed, the patents automatically expired. Before expiration of the patents, it is stated by a Customs official, a Canadian manufacturer offered twice to manufacture the valve in Canada on a royalty basis but their offer was turned down, it is said, on account of the Sloan Valve Co. being of the opinion that the potential business for valves in Canada was too great to allow the matter to get out of hand.

According to Mr. Moody, the patents in Canada on the Sloan valve expired some five years ago, but it was only within the past four or five months that a Canadian company have been manufacturing this valve. The embarking into the field of manufacture of this valve, stated Mr. Moody, and the bringing to light of certain charges against the Sloan Valve Co., were coincident with the employment by the Canadian company of a Mr. Sloan, a half brother of the head of the company, who up until that time had been manager of the Sloan Valve Company in Canada.

No Charge Laid Yet

No definite charge has yet been laid against the Sloan Valve Co., but a good deal is being said on each side of the case in representations being made to the Customs Department at Ottawa. A number, estimated at from 3,500 to 5,000, have been seized by the Customs on the grounds that they are marked "Sloan Valve Co. Ltd., Toronto," thus leading Canadian buyers to believe that the valves are made in Canada. The Customs Department points out that this belief is strengthened by a reference to the company's literature which after describing Royal Flush Valves says, "Manufactured by Sloan Valve Co. Ltd., 67 Adelaide St. East, Toronto, Canada." The valves seized amount to 14 tons and are valued at approximately $55,000, according to the Customs Department.

A Customs official states that the company is open to prosecution for false marking and that they are also open to certain charges under the Dumping Act. In confirmation of the latter he points out that the Sloan valve selling for approximately $12 in the United States pays duty of 35 per cent. and 3¾ per cent. tax on entering this country, bringing the duty paid value to about $16.80 laid down in Canada. He stated that this company continually shaded the price on Canadian-made valves, undercutting sometimes until the price was down as low as $10.50.

Though no official charge has been laid yet it is stated by the Customs Department that action will be taken on the basis of infringement of Section 1,209 of the Tariff which says:

Action Probable

Any goods which (a) if sold would be forfeited under the provision of Part 7 of the Criminal Code or (b) manufactured in any foreign state or country which bear any name or trade mark which is or purports to be the name or trade mark of any manufacturer, dealer or trader in the United Kingdom, or in Canada, unless such name or trade mark is accompanied by definite indication of the foreign state or country in which the goods were made or produced."

Discussing the subject with F. R. Moody, Canadian manager of The Sloan Valve Co. Ltd., Sanitary Engineer was advised that the company had been carrying on business in good faith but were ignorant of the requirements of the Custom authorities in regard to marking. The fact that their valves had been coming into Canada marked with the name and address of the company in Toronto ever since the company was incorporated and the local office opened in July, 1921, was cited as an indication that the Customs Department itself had not very rigidly enforced its inspection or their omission would have been noticed earlier. Mr. Moody stated that Mr. Sloan, half brother of the head of the firm and former manager at this branch, had been employed by a Canadian company last March and it was just now that an effort was being made to find a basis for certain charges against the Sloan Valve Co. He states that the Customs Department has seized 3,500 valves, that he assisted the officials in every way in gathering together all available valves marked with the company's name and addressed Toronto. Since these were seized, further shipments of 1,400 valves have come to hand by express with revised stamping reading, "Sloan Valve Co., Chicago." Mr. Moody states that business is proceeding without interruption, and he is of the opinion that there will be little further difficulty now that his company realize their responsibility and are carrying it out.

The Dumping Act

Discussing the subject of charges under the Dumping Act, Mr. Moody states that the Royal Flush Valve with list price of $23.00 in both the United States and Canada is quoted to jobbers at 50/10/10 off in the United States and in Canada at 25/20 and occasionally an extra 5 per cent. for large quantities. The stock which he had in hand was said to have been invoiced for duty at 40/10/10 off, the prevailing price in the United States at that time and which is a higher price than that now existing. That would bring the lowest quotation to $9.32 in the United States and $13.14 in Canada. Replying to charges of the Customs Deparment that these had been sold as low as $10.50 in Canada, Mr. Moody replied that the lowest price at which these valves were sold was $12.00 each, this being for the Mount Royal Hotel in Montreal, where a very large number of the valves were used. Asked concerning the charges of shading Canadian price on the same valves, Mr. Moody denied any unfair cutting of prices but said that his firm generally figured on meeting the prices of their competitors. He stated that the valves now held by the Customs which are stamped with the company's name and addressed Toronto. would if released be stamped "Made in the U.S.A.," so

(Continued on page 46)

"Receipt Tax Will Handicap Trade"

Says Secretary Dominion Board R.M.A.—Penalty for Person Who Divides Amount Paid With Intent to Evade Tax—What Constitutes a Receipt—Exemptions—Will Hamper Trade

"THIS ACT will give the retail trade of Canada, as well as other interests, a staggering blow when it comes into operation. It will disrupt every cash and credit sales slip and cash register system that is now in existence throughout Canada, and it will add more expense in a great many cases, to the office staff of retail merchants than the amount that will be paid to the government by them in stamps."

The foregoing observations, together with others of like nature, are made in a memorandum on the question of the operation of the tax on receipts which comes into effect the first of January, 1923, which has just been issued by E. M. Trowern, secretary of the Dominion Board, Retail Merchants' Association if Canada.

Special mention is made of the fact that a penalty is provided for the person who separates or divides the amount paid, with intent to evade the tax.

Retailers Should be United

Every retail merchant in Canada is urged to take a deep personal interest in this matter. The Dominion Board feels that the measure should be defeated if possible, and therefore calls upon all merchants to work together and act together under one common direction.

The memorandum follows:

What the Act Requires

According to the Special War Revenue Act which was passed at the last session of the Dominion Parliament, and which will come into operation on January 1st, 1923, upon all receipts of ten dollars ($10.00) and upwards there must be affixed thereto an adhesive stamp of two cents (2c), or, unless there is impressed thereon by means of a die, a stamp of the value of two cents (2c), which is to be cancelled by the person by whom the receipt is given before he delivers it out of his hands. Cancellation shall be effected by the person who cancels the stamp, **writing or impressing his name or initials on or across the stamp, together with the true date of such writing or impressing.**

What a Receipt Means

A receipt means any note, memorandum or writing whereby any money amounting to ten dollars or upwards, or any bill of exchange or promissory note for money amounting to ten dollars or upwards, is acknowledged or expressed to have been received or repaid, or whereby any debt or demand, or any part of a debt or demand, of the amount of ten dollars or upwards is acknowledged to have been settled, satisfied or discharged, or which signifies or imports any such acknowledgment, **and whether the same is, or is not, signed with the name of any person.**

Exemptions

The receipts which are exempted under the Act are as follows:

(a) A receipt for any money deposited in any bank to be accounted for to the person to whose credit the money is deposited.

(b) A receipt or document in the nature of a receipt which is taxable under any other section of this Act.

(c) An acknowledgment by a bank of the receipt of a bill of exchange or promissory note for the purpose of being presented for acceptance or payment.

(d) A receipt for or upon the payment of money paid for any purpose to or by His Majesty for or out of the Consolidated Revenue Fund of Canada or for or out of the Consolidated or General Revenue Fund of any Province of Canada.

(e) A receipt endorsed or otherwise written upon or contained in any instrument liable to stamp duty, and duly stamped, acknowledging the receipt of the consideration money therein expressed.

All Legislation Should be Made Clear

"Sub-section (b) of the exemption clauses is not clear," says Mr. Trowern. "We took it up with the Department but found that no rulings have been made yet. We suppose they mean that when a cheque is received in payment for an article or in payment of an account, that when stamps have been put on the cheque it is not necessary to put them on the receipt. This is another evidence of poor legislative drafting, and we contend that all legislation should be drafted in plain, simple language."

Penalty for Violation

Any person who violates any of the provisions of the above sections of the Act, or who refuses to give a receipt, duly stamped, or who, upon the receipt of a payment to the amount of ten dollars or upward, gives a receipt for a sum not amounting to ten dollars (when the

What Do You Think of the Proposed Receipt Tax?

A detailed memorandum setting forth exactly what constitutes the Receipt Tax which is to come into effect on January 1, 1923, is given herewith. The details indicate that this is likely to be a handicap to the retailer. Some steps should be taken immediately for a single voice to express the feeling of the hardware merchants of Canada on this important topic. Constructive suggestions should be forthcoming.

Read the regulations as they are likely to apply, and then communicate with The Editor, Sanitary Engineer, 143 University Ave., Toronto, giving your views, which in turn will be made use of in giving the plumbers' and steamfitters' side of the case to the proper authorities. Your co-operation is needed in this highly important matter, so write a letter NOW.

Novel Ideas in Showroom Design and Layout

There is not a bit of waste space in this attractive plumber's showroom and some of the novel ideas for display contained therein might be copied to advantage by others who have difficulty in laying out an attractive showroom. The walls and ceiling of the showroom are spotless white, thus showing off the fixtures to good advantage. The walls are panelled, and to them are affixed a series of wall basins, bathroom specialties. Sinks, laundry tubs, basins, etc., are secured to a low partition at the rear which keeps the office private and distinct from the showroom. It is such displays as this and the plumbers' efforts to bring people in to see such fixtures, that is doing much to bring about better sanitary conditions in homes in cities, towns and rural districts.

actual amount received is over ten dollars) **or who separates or divides the amount paid with intent to evade the tax, shall be liable to a penalty of not exceeding one hundred dollars.**

It Will Disrupt Every Cash and Credit Sales Slip

"This Act was passed by the Government on June 27th, 1922, and it will come into operation on January 1st, 1923, if the Government, in the meantime, does not see fit to have its operations suspended, which we hope they will," says Mr. Trowern.

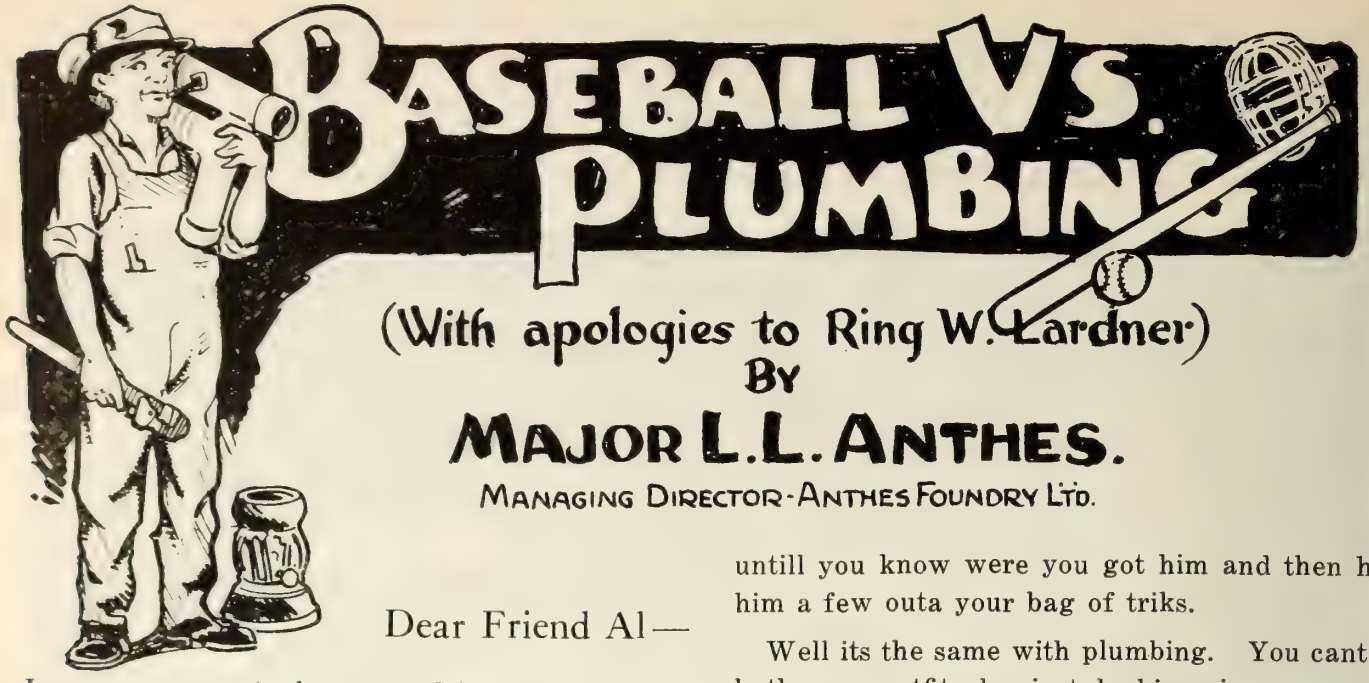
"This Act will give the retail trade of Canada, as well as other interests, a staggering blow when it goes into operation. Only those engaged in the retail trade have any idea of what it means to carry out the provisions of this Act. It will disrupt every cash and credit sales slip, and cash register system that is now in existence throughout Canada, and it will add more expense, in a great many cases, to the office staff of retail merchants than the amount that will be paid to the Government by them in stamps.

"Its operations will cut both ways. In the case of fruit and produce dealers, when retail merchants purchase fruit, vegetables, produce, poultry or eggs, etc., from farmers and market gardeners, it will be necessary for the farmers and market gardeners to carry at all times postage or revenue stamps with them, so that they can place them on the receipts they give to the retail merchants for the goods they sell to retail merchants when they want a receipt for the same. If the farmers and market gardeners refuse to place stamps on their receipts and to cancel the same they will be subject to a fine not exceeding one hundred dollars. Or take the case of a retail merchant who takes a receipt from his employees for salaries received, the employees must also carry a supply of stamps so as to place stamps on the receipts they give for their salaries, and cancel the same, or they will be subject to a fine.

TradeMust Not be Hampered by Governments

'There are a large number of other illustrations that could be given but the above are sufficient to show that this is another piece of annoying and badly considered legislation, that will not only annoy retail merchants but will add to the cost of doing business without giving the Government the amount they could secure by a less expensive system, as far as retail merchants are concerned. No effort, as far as we know, was made by the Government to ascertain what effect this complicated system would have on the retail trade; it has evidently been merely recommended by someone unfamiliar with retail trade conditions, and it was then thrust upon us when the budget was brought down,

(Continued on page 35)



(With apologies to Ring W. Lardner)

By

MAJOR L. L. ANTHES.

MANAGING DIRECTOR-ANTHES FOUNDRY LTD.

Dear Friend Al—

I guess you musta bean wondrin what has became of me since Old Bonesetter said there was no come back for that glass arm of mine and that I mite as well hike to the Bush agane.

Well old-timer Ime back to my trade the one I was prentised to before I started into making 3.75 hitters look like old mades trying to swat flies with a parysol.

It aint the undertakin bizness like what Lanky Bill Sanders went into when he dropped out of the big league. Bill was quite a josher and he said that now instead of winding up to put over a hot one he runs down to put under a cold one. Bills jokes always did make one feel like ice on the stummick.

Ive froze onto a real trade with some class into it. I spose youve heard of plumbing—the fellows what makes water run upstairs in pipes and what put the bath in bathroom.

Well here I am in Tarraboom a comming burg in rurail Ontario with a shop all of my own and a showroom display that makes the rubes rubber like baldheads at a berlesquew show. Am I makeing good? I asks you—you know me Al.

I bought the dump from a feller what married a rich wife which nesessitated his retireing from useful bizness.

Him and me learnt our trade to-gether. But his delivery was always a little slow even in them days an he never got out of the Bush League in his chosen perfeshion. He was a good head in menny waze but he never new how to put em over and never had nothin up his sleeve.

The plumbing bizness is very much like baseball being difernt in menny respks. You know how you gotta size up a batter and feel him out untill you know were you got him and then hand him a few outa your bag of triks.

Well its the same with plumbing. You cant sell bathroom outfits by just lookin wize—you gotta size up the condishuns and the prospecks and then you gotta put in the same kinda ginger what usta land us into the world serious.

Well this here guy Stewart who I bot the shop off of and who we always called Stew for short had this dump a good menny yearze and wile he had manaiged to retire finely without the asistence of the baillif he never maid nothin to cheer about.

He never bleeved in such things as a showroom, he usta say it was only idol capitol. He figgered that folks what came into his shop new what they was after without fallin all over enamel fxtrs. before they could see the boss. After nozein round a bit and askin Stew a few questions and etc. I came to the concln. that the only thing that had been keepin things goin round hear was Bill Stye the foreman.

"Hes a helluva crank" sez Stew "and thinks more of doin a good job than what he does of wat things cost. He got his trainin in the city with one of the big fry their and is bugs on fancie showrooms and what he calls permnancy."

I rocked my bean and let Stew cont. his story.

"You see" sez Stew, "Bill means well but hes bean spiled by what I call higher eddycation. He was never satisfied with a job untill he had smoke tested it and give it a regler meddicle examn. like a life ins. candydait such as they do in the city. He got the customers spiled untill they dident no who was boss round hear and ast fer him offener than they ast for me. But Bill has hiz good pints too and you could figger on his havin a job done when he said he wd. Nobody could lofe on a job Bill was bossin."

So after listenin to all Stew had got to say and

after making the necessary fin. arraignments I took over.

I called Bill into the too bye fore that Stew calls an offis and I sez to him, "Me and you is goin to have a hart to hart talk."

I could see he was sizen me up an as he was about as husky as me I could tell by the snap in his ize he was ready for anythin from catch as catch can to Queansberry Rules.

"Just before we start boss" he sez quiet like, "theirs just one thing Ide like you to understand about this here joint. I aint part and parsel of the goods and chatls. and this is a free country."

I always had a sneakin regard for a feller who wanted to let you know where both of you was at before openin negotns.

"Thats all rite" I sez, "but we got to have some sort of understandin before signin artkls. for the seeson."

He didnt say nothin.

"In the 1st place Ime lead to bleeve that your a crank about the work and bleeve in smoke testin an all that stuff?"

"Your right" he sez short like.

"An ferthamore" I sez "you bleeve in big showrooms an high class displaize."

"Yep" he sez.

"Well right here" I sez, "do you think this burg can stand it—will they fall for the high class stuff?"

"If you only got peenuts to sell what do you xpct. people to bye?" asts Bill.

I liked this sort of reparty and I new right off the bat Bill was a live one. So I chainges the subjek.

"What Stewart been payin you?" I ast.

"No moren the law alouse" he sez, "but I got a good home hear and wldnt' have been any better off in the city. Ide a gone into bizness for myself long ago but my wife aint strong and the doctors needed my capitol to keep her alive."

Bill blushed and looked sorry that he sed so much.

"Now look hear old bean" I sez, "I think you an me is going to pull fine. Ime goin to continue you on the same salery (Bill skowled) but on top of that Ime goin to chalk up an equal amt. to yr. salary to yr. credit in the bizness each week. I don't know just yet how Ile ajust it, but this bizness is goin to be yours as well as mine and if we make good you dont only get yr. share of the cr. but of the earnins too."

Poor Bill I had hit him blow the belt. He was breathin hard just like a school kid before a lickin.

"An furthramore" I sez "weer gointa waist a lot of white paint on this hear show-room. Were gointa put in baths and lavratories and etc. what will do cr. to a city jobbin house."

I told him I could do the talkin sellin the goods and he could do the work. You know me Al.

"Its a go" he sez, "an if we dont put it over Ile eat my shirt."

Well we done a lot of perlimenery plaverin an then went to it. The folks round here haint never seed a real live plumbing shop in there lifes befoar and bleve you me they all started to set up and take notis.

It took some warmin up and eliminashun tri-outs befoar we wuz ready fer our schedule, but we finely arivd.

Bill has a daughter that is right smart at figgers and hez had some schoolin in a kumershal coarse an she looks after the books and bills and etc. Her name is Vilet. I suppervizes the infield so to speek an Bill he is boss of the outfield. Bills girl Vilet is shortstop of the bizness an there aint nothin gets buy her. If enny of theze fresh sailsmen trize to put ennythin over she sends em to the bench and soon there eatin outa her hand.

Well friend Al it aint no intention of mine to spill all the beans in this one letter.

This is jest to let you an the boys know that I dont need no benefit nor nothin like that and that them iron men I hung onto so tite when I was pullin down dubble figgers with the Sox is helpen me earn an onnest livin now.

Well more of this annon as Shakespeer sez.

A showroom display that makes the rubes rubber like baldheads at a burlesque show.

Standard Furnace Installation Code

Complete Text of Standard Code Regulating Installation of Warm Air Furnaces in Residences, as Approved by Both Manufacturers and Installers and Sanctioned by Representative Authorities

IN THE following we publish the complete text of the "Standard Code Regulating the Installation of Warm Air Furnaces in Residences," which has been approved by the National Warm Air Heating and Ventilating Association, the National Association of Sheet Metal Contractors and the Western Warm Air Furnace and Supply Association of the U. S.:—

Outline

Article 1.—Meaning of Terms.
Article 2.—Provisions in Building.
Section 1.—Construction.
Section 2.—Chimneys.
Article 3.—Formulae.
Article 4.—Installation.
Section 1.—Location of Furnaces.
Section 2.—Foundation.
Section 3.—Setting Furnace.
Section 4.—Casings.
a. Portable.
b. Brick Set.
Section 5.—Basement Pipes.
Section 6.—Wall stacks.
a. Single.
b. Double.
Section 7.—Registers.
Section 8.—Air Supply.
Section 9.—Smoke Pipe.
Section 10.—Pipeless.

Article Number 1.—Meaning of the Term "Warm Air Furnace Heating Plant."

Warm air furnace heating plants, to which this code refers, shall consist of one or more warm air furnaces, enclosed within casings, together with necessary appurtenances thereto, consisting of warm air pipes and fittings, cold air or recirculating pipes, boxes and fittings, smoke pipes and fittings, registers, borders and face plates, the same being intended for heating buildings in which they may be installed.

Article Number 2.—Provisions to Be Made in Building Under Construction for Reception of Warm Air Furnace Heating Plants

Section 1. (a) The following provisions shall be made by the owner or building contractor, in any building wherein a warm air heating plant is to be installed.

(b) Where warm air register boxes, heads, pipes or stacks are to be installed, joists shall be set not less than sixteen inches (16″) on centers and shall be butted and not lapped. Studding shall set directly over and under joists, leaving a space of not less than fourteen inches (14″) between studs and joists. Wherever joists are cut, headers must be put in to support joists.

(c) All first story single or subfloors shall be continuous. In all houses having studded exterior walls, these floors shall be extended to the outside sheathing and all spaces between studding shall be closed at the attic line.

Note 1. It is strongly recommended that the attic be tightly floored to reduce heat losses.

(d) All partition walls (or sections of these walls) in which heat stacks to the second floor rooms are to be installed, shall be built of six inch (6″) studding to second story floor joists.

Chimneys

Section 2. (a) The owner shall provide a chimney for the furnace constructed in a manner to comply with the following specifications:

(b) The chimney must be absolutely smoke tight through its entire length, and must extend at least three feet (3′) above a flat roof or two feet above the ridges of peak roofs.

(c) If built of a single thickness of brick or of cement blocks, it shall be lined throughout its entire length with fire clay flue lining, having not less than three-fourths inch (¾″) thickness. Flue lining to be laid in mortar and made airtight.

(d) The furnace flue must have no other opening for attaching any fireplace, furnace, stove, range, water heater, gas or ventilating connection.

(e) If necessary to offset the flue, it must be done in such a manner as not to reduce the cross sectional area nor create a ledge or obstruction, where loose material may lodge.

(f) Its narrowest dimension shall not be less than eight (8″) inches and no flue smaller than 8″ x 8″ rectangular or eight (8″) inch diameter round will be considered suitable when hard coal is to be burned, or 8″ x 12″ rectangular or ten (10″) inch round for soft coal or wood.

Note 2. It is recommended that the height above the furnace grate be not less than twenty-six (26) feet.

Note 3. It is strongly recommended that all new chimneys be built in strict accordance with the ordinance recommended by the National Board of Fire Underwriters.

Article Number 3.—Method for Determining Size of Warm Air Pipes, Wall Stacks and Furnaces

Method of Determining Size of Basement Warm Air Pipes

(Read Explanatory Notes 4 to 11).

Section 1. First Floor Rooms.

Divide square feet of glass by 12.
Divide square feet of net wall by 40.
Divide cubic contents by 800.
Add together the above and multiply by 8.

The result is the area of the basement pipe.

The sum of:

Glass (sq. ft.) (Note 4) ÷ 12, Net Wall (sq. ft.) (Note 5) ÷ 40, Cubic Contents ÷ 800 × 8 = Area of Basement Pipe (Note 10).

Section 2. Second Floor Rooms.

Divide square feet or glass by 12.
Divide square feet of net wall by 40.
Divide cubic contents by 800.
Add together the above and multiply by 6.

The result is the area of the basement pipe.

The sum of:

Glass (sq. ft.) (Note 4) ÷ 12, Net Wall (sq. ft.) Note 5) ÷ 40, Cubic Contents ÷ 800 × 6 = Area of Basement Pipe (Note 10).

Section 3. Third Floor Rooms.

Divide square feet of glass by 12.
Divide square feet of net wall by 40.
Divide cubic contents by 800.
Add together the above and multiply by 5.

The result is the area of the basement pipe.

The sum of:

Glass (sq. ft.) Note 4) ÷ 12, Net Wall (sq. ft.) (Note 5) ÷ 40, Cubic Contents ÷ 800 × 5 = Area of Basement Pipe (Note 10).

Method of Determining Size of Wall Stacks

Section 4. First Floor Rooms. Same as Section 1.

Section 5. Second Floor Rooms. Deduct 40 per cent. from basement pipe area determined in Section 2.

Section 6. Third Floor Rooms. Deduct 40 per cent. from basement pipe area determined in Section 3.

Explanatory Notes

Note 4. In obtaining glass surface use full casement opening. An outside door is figured as glass.

Note 5. To obtain net outside wall multiply height by width and deduct the glass in all windows and outside doors.

Note 6. For rooms having unusual exposure, ordinarily north, northeast and northwest, add 15% to pipe area. For east and west exposure, add 10%.

Note 7. For cold ceilings, add one-half net area of ceiling to net exposed wall (cold ceilings are those next to unfloored attics).

Note 8. Use no warm air pipe less than 8 inches in diameter.

Note 9. It is understood in using the above values for determining basement warm air pipe areas, that these pipes should be run comparatively straight and that they should not be over 10 to 12 feet in length. Sharp turns and long pipes should have extra capacity.

Note 10. These formulae are for 70° inside temperature with zero temperature outside. For a temperature of 10° below zero, add 10% to the capacity of each pipe.

Note 11. The value of 800 (used in cubic contents) is for an estimated air change of one room volume per hour. If it is desired to provide for 1½ room volume use the figure 600. If for 2-room volumes use the figure 400. The factor of 8 in Section 1 will give a register temperature of approximately 190° in zero weather. Should a lower register temperature be desired, the factor 9 will give 175° at the register.

Transition Fittings and Stacks

Section 7. Transition from warm air pipes to stacks shall be made with a well designed elbow or boot and no stack shall be less than 60 per cent. of the warm air pipe area.

Method of Determining Size of Registers.

Section 8. All registers shall have a free area at least equal to the calculated area of the basement pipe.

Method of Determining Size of Furnace.

Section 9. Add together the actual warm air pipe areas in sq. in. as obtained in Sec. 1, 2 and 3, and select a furnace having a free area not less than the sum of all the warm air pipe areas.

Article Number 4.—Installation and Location of Furnace.

Section 1. The location of the furnace shall equalize the length of warm air runs as far as possible, yet give necessary preference to pipes supplying living rooms, dining rooms and main halls.

Foundation

Section 2. Furnace foundation of brick, cement, or other incombustible material must be provided. Said foundation to extend at least fifteen (15″) inches at rear and sides of furnace casing and at least thirty-six (36″) inches in front of furnace casing. Foundation to be level.

Setting or Assembling of Furnace

Section 3. (a) The base ring of the furnace shall be cemented to the foundation, making an airtight joint. The furnace parts shall be assembled plumb and level, and in a workmanlike manner.

(b) All sections and joints shall be properly fitted. Joints requiring cement shall be well filled and all bolts shall be drawn up tightly.

Casings

Section 4. (a) Warm air furnaces shall be enclosed in metal casings or walls of brick, tile or concrete.

(b) Portable. Sheet metal casings including casing tops shall be made of galvanized sheets, not lighter than Number 26 U. S. Standard Gauge. They shall fit the castings and casing rings closely, so as to be dust tight, and shall be securely fastened to the front. The casing shall be lined from the upper casing ring down to a line on a level with the grate.

(c) When side collars are used the casing top must be of sufficient height so that the largest warm air pipe can be taken from side without ovaling. In no case shall a distance less than eight (8″) inches be maintained between the top of any furnace and the top of casing or bonnet.

(d) Any furnace, the casing top of which shall come within sixteen (16″) inches of a combustible floor, ceiling or joist, shall be protected by a metal shield, extending not less than eighteen (18″) inches beyond the casing of said furnace. This shield shall be suspended at least two inches below wood work, allowing free air space between shield and woodwork. No furnace casing or top, coming nearer than six (6″) inches of ceiling or joists shall be allowed in any case.

(e) Openings for side casing collars shall be cut into the casing top, so that the tops of all openings are on a level. Casing collars shall be fitted into place with a proper flange, or bead on the outside and drawn up on the inside, making a dust tight joint. All collars shall be of same size as the warm air pipes to which they are to be connected.

(f) Brick set, cement or hollow tile casings shall be constructed as follows:

(Continued on page 36)

Bathroom Specialties on the Xmas Tree

A novel means for interesting people in bathroom specialty lines as Christmas presents is being adopted by a progressive plumber in the form of a Christmas tree in the window laden with such lines as presents. He finds that the desire of people to give gifts of value helps the sale of these lines. Any plumber with a show window can adopt this idea to good advantage with the use of such accessories, tinsel, colored lights, etc. When well polished up, these accessories present a striking appearance on the tree. Many new homes have been purchased this year in the cities and towns and the purchasers will be interested in such gifts as helping them furnish the home.

Rural Sewage Disposal Systems

The Three-Inch Syphon Very Desirable for Residence Systems —Fixed Measurements an Important Factor—Action of Bacteria in First Chamber

Written for Sanitary Engineer by EDWIN NEWSOME, Consulting Sanitary and Heating Engineer

(Continued from last issue)

TO ESTABLISH standards in connection with Sanitary Engineering installations and other work, particularly those undertakings where the laws of nature are a dominant factor should be given very serious consideration, and if for that reason alone, an endeavor is made to standardize sewage disposal systems, such endeavors ought to meet with the approval of every sanitary engineer the world over.

Constructional Factor

To successfully dispose of sewage by the ordinary sub-surface field tile bed has been proved to have many features in its favor. Such field tile should not be laid lower than 24 inches under any consideration, and according to the nature of the soil, as near as 12 inches from the surface has been found desirable.

Such being the case, the head of sewage in the dosing chamber requires to be kept as low as possible, which means too, that the depth of the whole septic tank requires to be as shallow as can be. This factor brings us to a point where it is necessary to choose the proper size of a syphon, as well as the type. The syphon described in these articles, has been in use for over 25 years to the knowledge of the writer, and it has proved to be the best on the market.

It discharges when the sewage has reached a total depth of one foot five inches, which means that if the disposal field tile is laid 12 inches below the surface, that the sewage is at high water level, only 5 inches above the pipe in the ground; as a matter of fact, if the tile pipe be laid lower, the whole tank may in some cases be laid nearly level with the ground, or at most not more than only about a foot above.

Relative Height of Surface Over Tank, To Level of Ground Over Field Tile Area

Turn to plate 10 and compare figures given therein. The total depth of the dosing chamber from inside bottom, to inside top of tank is 2 feet 6 inches. The cover is six inches; the earth over the tank is 12 inches, a total depth of 48 inches.

Assuming that the field tile pipe is laid 12 inches below the ground, there would be one foot of earth on the top of the pipe. Thus the top of the field tile is approximately on a level with the bottom of the dosing, or syphon chamber. And the top of the ground over the tank would only be 36 inches higher than the field tile area.

If a larger syphon than 3 inches were to be used, the tank would be more than three feet above, because the next size larger requires a greater depth of sewage to make it operate, which proves the three inch syphon is the size most suitable for the purpose under consideration.

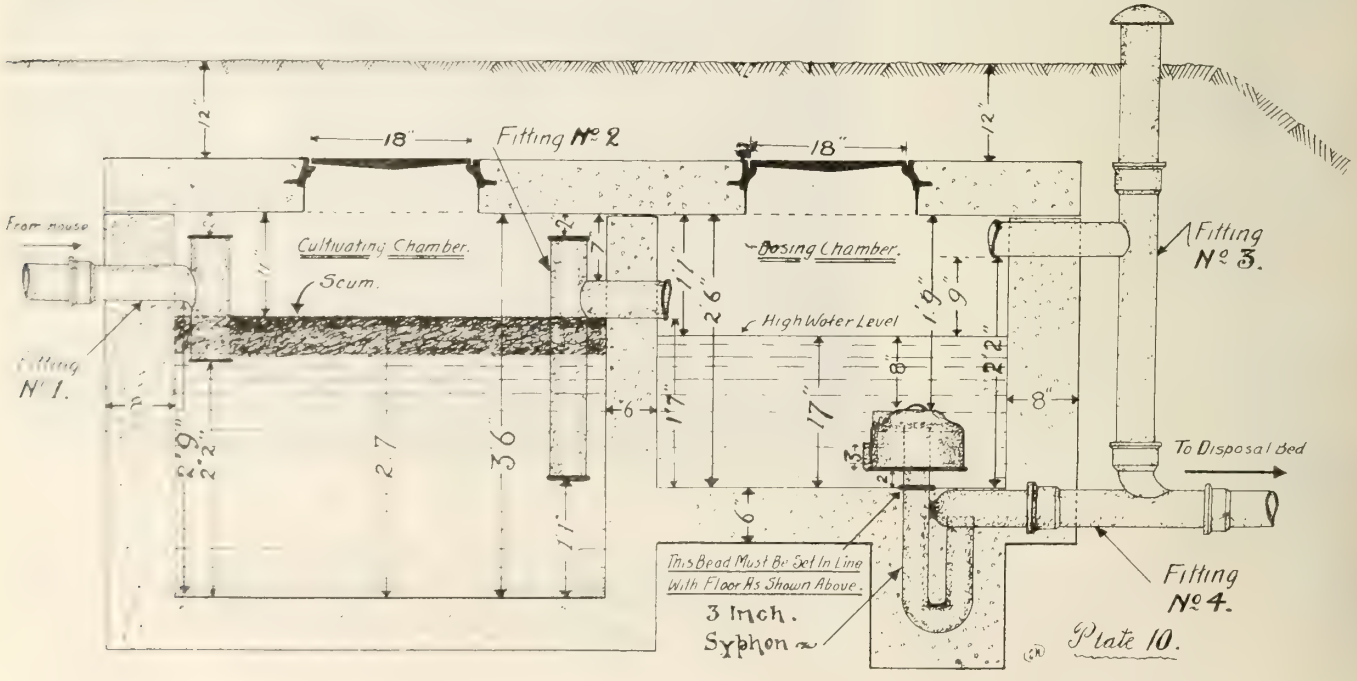
Proper Position of Fittings

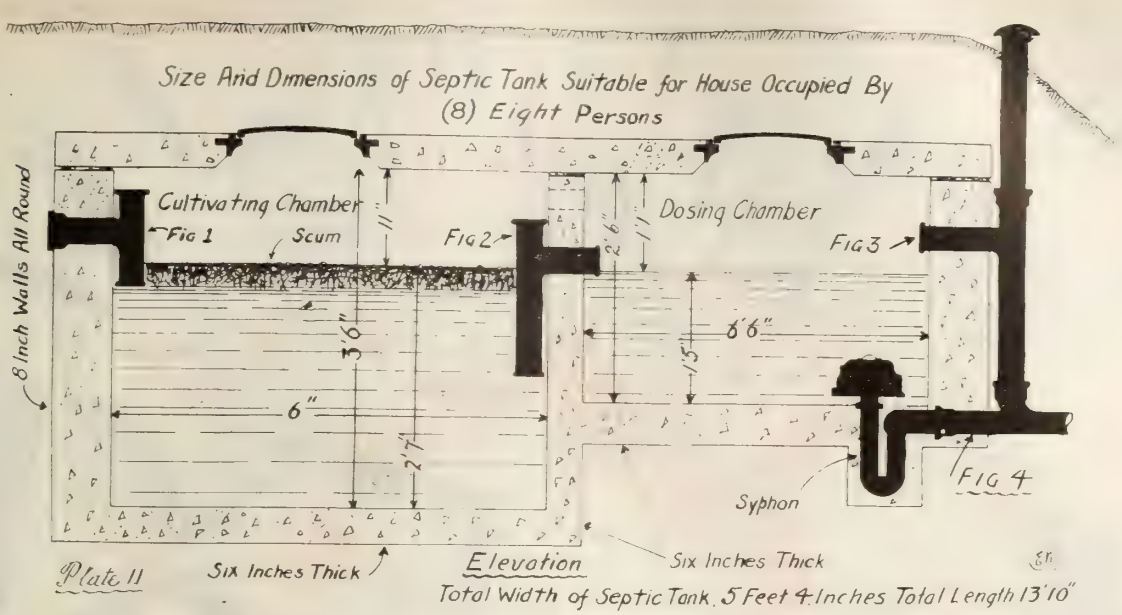
The above statements then, lead us to consider other fixed measurements. Turn to fitting No. 1. This should be placed in the forms in such a position as to have the distance between the horizontal branch and the bottom of the tank, 2 feet 9 inches, provided this compartment is 3 feet in depth as shown.

The lower end of the vertical portion is then 2 feet 2 inches from the bottom of the tank, leaving an air space of 2 inches at the top. This is very necessary.

The position of this fitting makes it possible to convey the sewage to a point just below the scum, said scum holding the unbroken solid particles down below it, and ensuring the properly breaking up of the same, a condition very necessary to the successful action of the anaerobic bacteria.

Now turn to fitting No. 2. This, too, has a proper position. The bottom of this fitting must be placed one foot one inch from the bottom of the tank, so that the overflow will be two inches or thereabout above the high water level in the dosing chamber, and by so placing it, the sewage will overflow from the cultivating chamber, two inches or more below





the lower portion of the inside of fitting No. 1. Thus keeping the pipe from the house free of sewage, as well as keeping the outlet of fitting No. 2 clear so that air can pass through it.

Position of Syphon

If the reader will turn to plate 6 on page 18 in the November 1st issue of the Sanitary Engineer, it will be found that the syphon is shown in a position near to the overflow, and by reading over the paragraph relative to that illustration, will learn the reason why a syphon should be installed as shown in plate No. 10 in this article. Now, as to the height which the syphon requires to be set. These syphons have a round head cast on them. This head should always be set in line with the bottom of the tank. Then when the bell is placed in position there will be two (2) inches of space between the two points, and, if this suggestion is carried out fittings No. three (3) and four (4), will also be in the right position. All these fittings are designed so as to ensure the proper working of the septic tank and syphon, as well as to eliminate the making of unnecessary joints. At the same time, if regular 4 inch soil pipe fittings are used, the various measurements must be followed, all of which it will be noted relate to the vertical positions and distances between the bottom of the two compartments and the fittings, and also to the depth of sewage necessary for the pre-determined intermittent discharge of the syphon.

If the readers will preserve the illustration, plate 10, it will be found very useful for reference when constructing a septic tank. No matter how large, if a three-inch syphon is used, the best, and only way to enlarge a two-compartment tank, is by increasing the length and the width. The depths to remain the same.

For example, plate 11, which is an elevation, shows the size of a septic tank suitable for a house occupied by eight (8) persons.

The heights shown are exactly the same as given in septic tanks suitable for houses occupied by 4 and 6 persons respectively, and described in previous chapters, differing only in the plans. See plate 12.

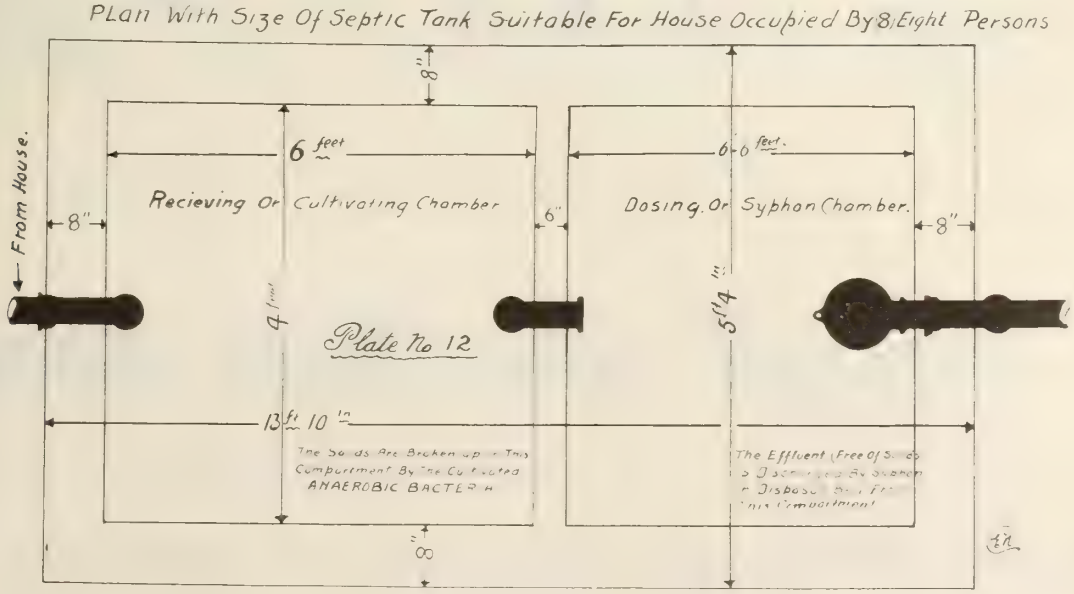
What Takes Place in Cultivating Chamber

The best season of the year to install a septic tank, is either in the spring, summer or early fall, or not later than 6 weeks before frosty weather comes round, for this reason:—Sewage should not be at a lower temperature than 65 degrees Fahr., being the most suitable for the cultivation of the anaerobic bacteria.

The action which takes place is the same as when fermentation takes place in the brewing of alcoholic beverages. As a matter of fact, it is the fermenting of the sewage which breaks down the solids, just as when yeast is broken down and fermentation takes place in a brewing vat.

The scum is a form of vegetable yeast, differing, of course, to malt yeast used

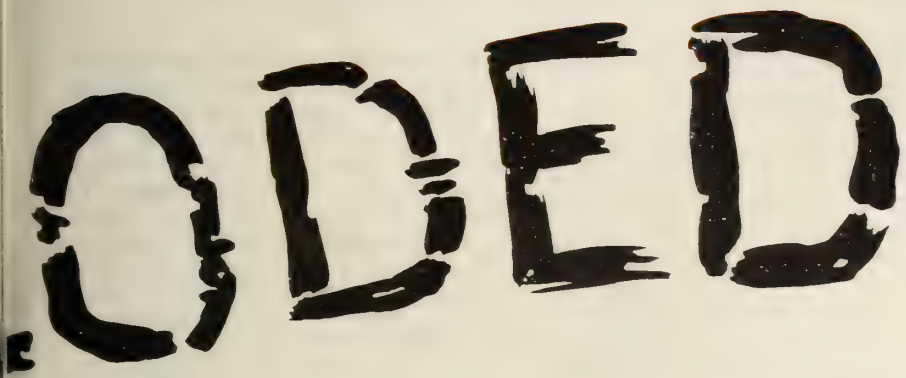
(Continued on page 29)


Plan With Size Of Septic Tank Suitable For House Occupied By 8 Eight Persons
8"
From House.
6 feet
6'6 feet
Recieving Or Cultivating Chamber
Dosing Or Syphon Chamber.
8"
6"
8"
4 feet
5'4"
Plate No 12
13 ft 10 in
8"
The Solids Are Broken up in This Compartment By The Cultivated ANAEROBIC BACTERIA
The Effluent (Free Of Solids) Is Discharged By Syphon Or Displaced Into This Compartment

Port Hope Sa

Vancouver Office:
325 HOWE ST.

Factories:
PORT HOPE, ONTA



But old ideas die hard

That old, fallacious belief that good workmanship alone, will bring success in the plumbing trade still lingers on.

"People know me and know the kind of work I do, and I've never overcharged anybody either. If there's any work to be done around here, or fixtures to be sold, they'll come to me for them—don't worry."

That sort of talk makes the angels weep. People don't go to a plumber when they want things—No! They go to him only when they positively need his goods or his services—when they can't get along without him.

Years before a householder is finally driven to replacing an antique bath tub he has suffered daily annoyance. Almost any time a sanitary engineer could have sold him new equipment by the merest suggestion.

People everywhere are doing without modern sinks, laundry tubs, etc.—people who can afford them—and they will do without them until some progressive Sanitary Engineer asks them to buy.

Success in the plumbing field as in every other is dependent upon aggressive, creative salesmanship. Just being on the job and doing good work is not enough.

We have some splendid suggestions for helping you sell and they will be gladly mailed to you free—if you write for them.

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Questions and Answers Regarding Plumbing and Heating Practice

A Problem in Sewage Disposal

Editor Sanitary Engineer: I am about to tender on a house of plumbing in a small town where there are no sewers, and have to instal a sewage disposal system. There are to be found some competitors on the job of course, and when discussing my plan with the owners, I referred to a large number of field tile and a septic tank fitted with a syphon.

My competitors state that I am trying to load the job up with a lot of unnecessary material, that a syphon is not necessary and no matter what number of people live in the house about 100 feet of 4-inch field tile pipe is enough. I must admit that I do not know just how to figure out an answer to my client. Can you tell me just what is right, why a syphon is necessary and how many field tile pipe should be laid on a job? The enclosed blueprint is the design of tank which my competitor proposes to use with 100 feet of field tile pipe laid as shown.

A New Subscriber.

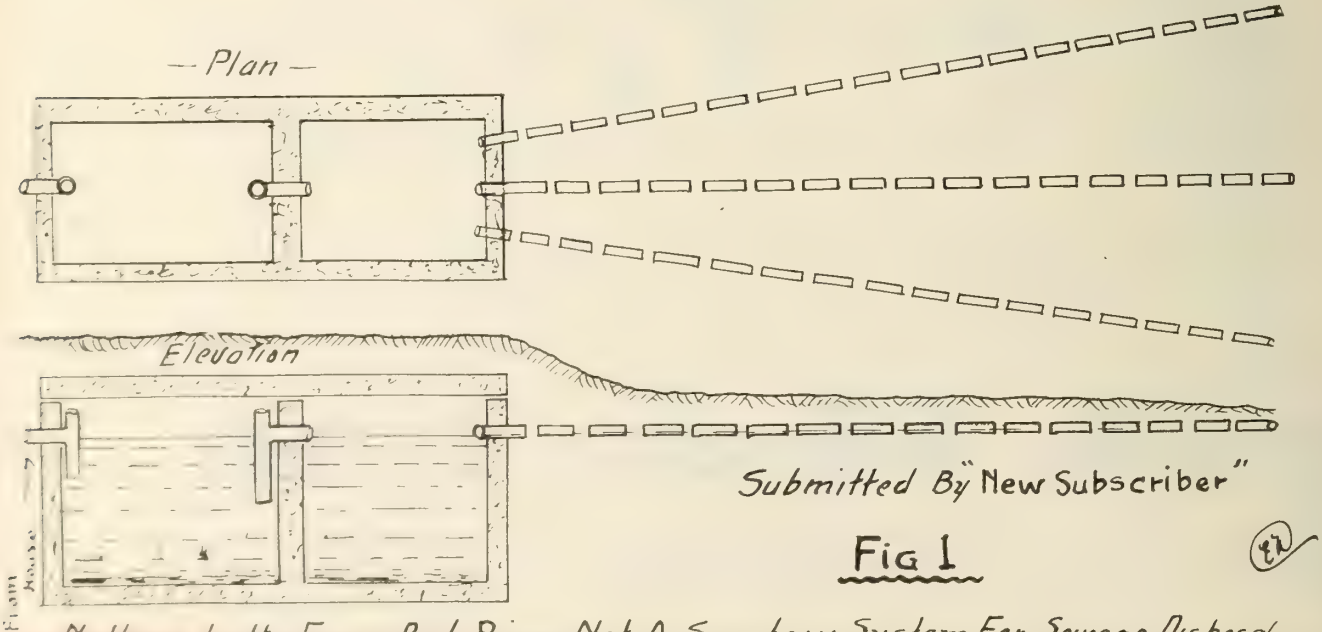
Answer:—The above questions are, we would think, the most important of all that could be asked in connection with a sewage disposal system. In the first place, the septic tank, (we would rather call it an apology) shown in blueprint, is not worthy of the name of septic tank. It is simply a two compartment sewage retainer, and would not be allowed to be installed in many provinces in Canada.

In a sewage disposal system a septic tank is only part of such a system, the next part being the disposal field tile pipe. Furthermore, the greatest known authorities on the question of sewage disposal, recommend what is known as an intermittent discharge. These same men, after devoting years of their life in conducting research work, have strongly advocated that laws be put into effect and enforced that would require the intermittent discharge of all sewage into a system of field tile pipe, or other methods of quickly and effectively distributing sewage over a wide area of ground.

We could fill a book with names of such authorities, and we have yet to find one person who thoroughly understands the laws of biology as related to aerobic and anaerobic bacteria in connection with sewage disposal systems that would sanction such a design of tank for the purpose named.

Some time ago the Province of Saskatchewan put a law into effect that would not permit such a tank, and disposal scheme. The Ontario Agricultural College published a splendid book in which sewage disposal systems were described. Also the Ontario Dept. of Health, and all gave designs of tanks and systems endorsing and advocating the regular septic tank and sewage disposal system in which an intermittent discharge is needed. This intermittent discharge can only be assured by using some mechanical flushing device or by a syphon. The latter is much to be preferred because it is non-mechanical and will last as long as this good old world lasts. No attention required either, once it has been set in operation, because it operates by natural law. And now to explain the reason why the syphon, and intermittent discharge is so necessary.

First, let us suppose that a dosing chamber contains say 130 gallons of sewage. This is equal to 20 cubic feet of sewage (Imperial gallons). Fig. 1, submitted, dosing, or second compartment would have 130 gallons of sewage retained for all time therein. The sewage would simply trickle out at just the rate it enters the first compartment. And if the W. C. was used in rapid succession, raw sewage, or partially digested sewage, would overflow into second chamber, and out into the field tile, and only the ground in the near reaches of the tank would receive any sewage. This ground would, and could, not help but be polluted, and this pollution may very easily find its way to a well, or some source of water supply and polluted ground is a menace to health. Therefore, the intermittent system of discharging sewage form a dosing chamber is very necessary, because the operation would ensure that the sewage would be evenly and effectively distributed throughout the whole area of the ground available.


— Plan —
Elevation
Submitted By "New Subscriber"
Fig 1
Nothing In Its Favor But Price. Not A Sanitary System For Sewage Disposal

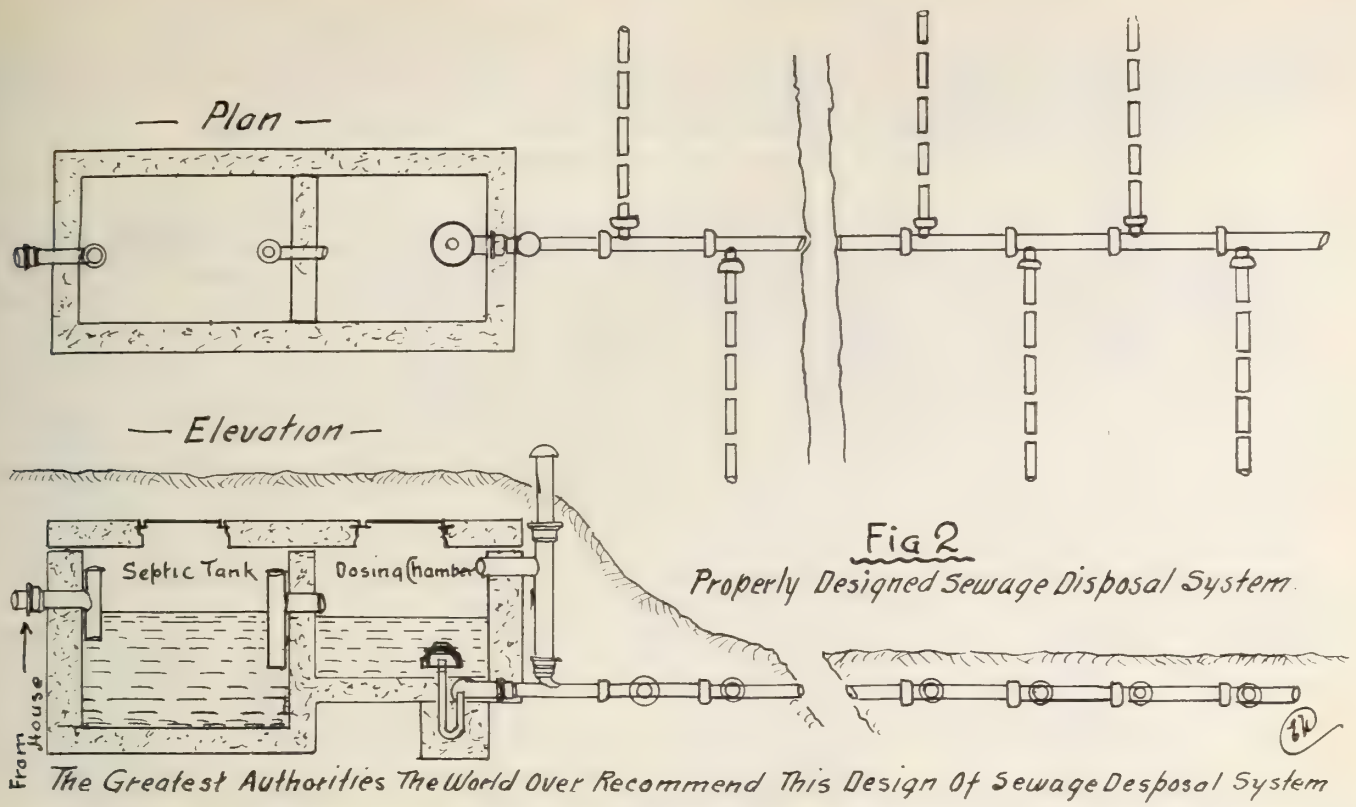


Fig 2
Properly Designed Sewage Disposal System

The Greatest Authorities The World Over Recommend This Design Of Sewage Desposal System

The question regarding the number of field tile necessary can not be left unanswered. If the dosing chamber, fitted with a syphon, will discharge 130 gallons of sewage at one operation, and the size of the syphon is 3 inches, the whole period required will be little more than one and one half minutes. Such a size syphon discharges sewage or other fluid at the rate of 80 to 90 gals. per minute, which means that 260 lineal feet of 4-inch field tile pipe is required. These figures are arrived at in this way: 130 Imperial gallons of sewage is equal to 20 cubic feet, and one cubic foot of sewage would fill 13 lineal feet of field tile. One lineal foot of four-inch field tile pipe will hold half a gallon of sewage, and finally, the main reason of all why an intermittent discharge is really necessary is the fact that aerobic bacteria found in the ground near to the surface is best kept in a healthy condition when sewage is supplied evenly over a wide area at one time, with a period of rest between each discharge.

No friendly germ can digest a continually fed quantity of sewage for very long. There again nature asserts itself. Human beings could not live if food was being consumed all the time with almost every breath we draw. The design of septic tank and sewage disposal system shown in Fig. 2 is planned in accordance with the requirements of Mother Nature, and she never gets out of order.

RURAL SEWAGE DISPOSAL SYSTEMS

Continued from page 25

in beer or porter, but the bacterial action is somewhat the same.

Now, if a vat of beer was set to ferment at a lower temperature than 65 degrees, it would take too long a period to ferment, or the yeast woulud fall to the bottom of the vat and the beer spoiled if not destroyed altogether. The yeast at the bottom would be, as it were, like the solids that would be found in the bottom of a cultivating chamber, so that to have the bacteria work properly in a septic tank, it is best to be sure that the sewage does not get chilled.

When a large amount of sludge is found at the bottom of the cultivating chamber of a septic tank, it proves that the anaerobic bacteria has not functioned properly, or that sufficient has not been cultivated to efficiently turn the solids into fluid, this proving that warm seasons of the year are most suitable for the installing and putting into operation of a septic tank.

(To be continued in next issue)

TRADE EXTENSION BUREAU NOT EXTENDING FULL SERVICE TO CANADA

In a recent issue of a United States plumbing trade paper the statement was made that the National Trade Extension Bureau was extending its services to Canadians on the basis of a five dollar annual charge. The statement has been misleading in this country and the following explanation has been made by H. E. Jones, in chrage of the sales help service of the bureau:

"So far as service to manufacturers and jobbers is concerned, the activities are confined within the United States and its territories. In occasional cases, where the interest has been sufficient to cause a request for it, and in return for a fee of $5.00, the bureau is authorized to use its discretion in the matter of sending into Canada the monthly service bulletin and related literature for plumbing dealers and heating contractors only."

The misunderstanding is said to have grown out of correspondence with a prominent Canadian firm which desired to use a part of the service of the bureau.

Since a minimum fee of $100 is collected from manufacturers and wholesalers in the United States, it would be unfair to extend the service to this class in Canada for only $5.00.

CITIZENS WILL HAVE A CHANCE TO VOTE ON SEWAGE QUESTION

Grimsby, Ont., citizens on election day will have an opportunity of saying whether Grimsby is to construct a sewage system and disposal works during 1923, or whether they are going to continue to live under the unsanitary conditions in which they are at present living.

Last June Mr. Bromley submitted a complete set of outline drawings and a full report of a sewage system for Grimsby. These plans will immediately be blue-printed after some minor changes are made in them. These changes are caused by the laying of the new pavement on Main Street. The sewer mains to take care of Main Street will be laid in behind the properties facing on Main Street. Mr. Bromley's report called for the sewers to cost in the neighborhood of $135,000.

Patterns for Hanging Heating Ducts

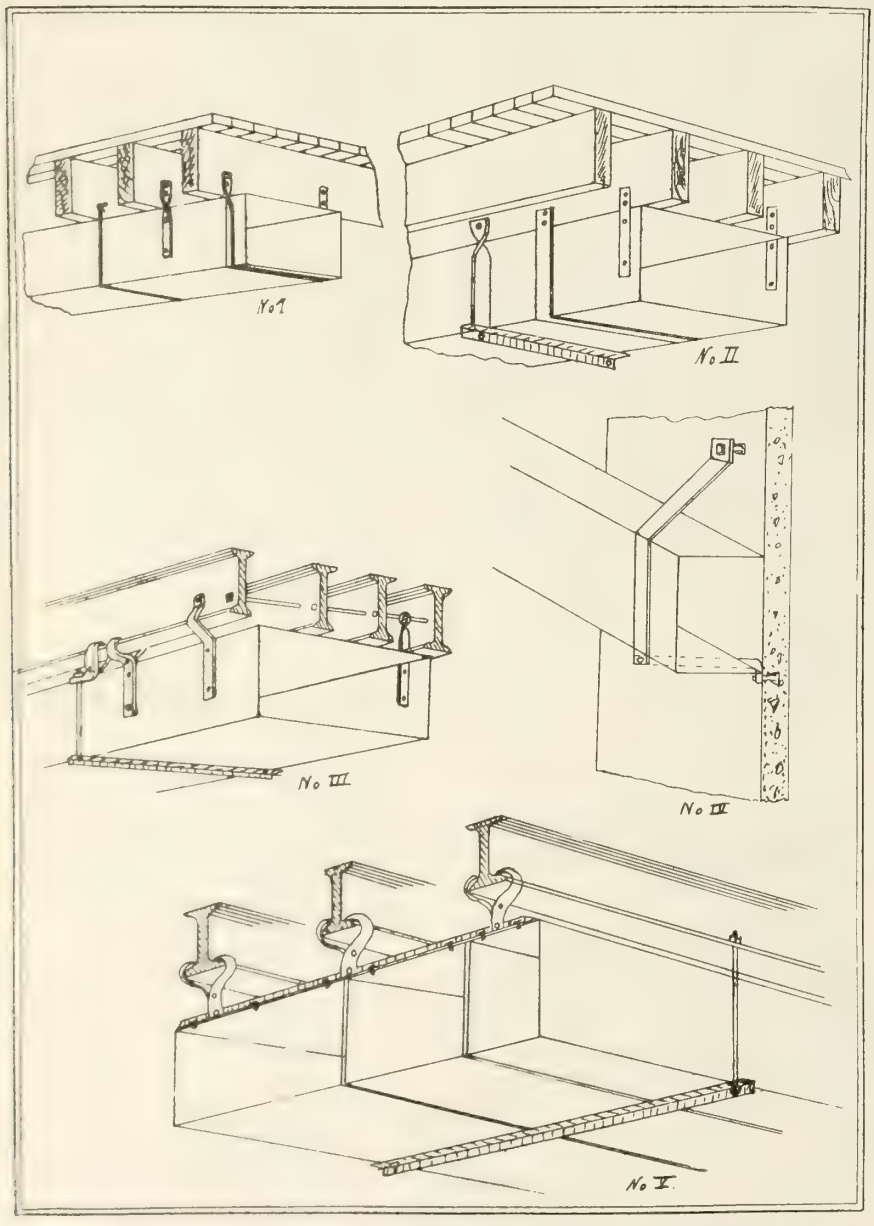
Written for Sanitary Engineer by O. W. Kothe, Principal, St. Louis Technical Institute, St. Louis, Missouri

THE matter of hanging heating ducts is varied and in most cases the method of hanging them is governed by the job, or to what it is possible to hang them to. Where galvanizing iron ducts are run beneath floors that have wooden joists, as in Figure 1 or 2, then treatment similar as shown may be used; but care should be taken that a substantial job is made.

In Figure 1 a wire suspended on the joists is sometimes used by some workmen, which may not be so objectionable to very small ducts, but at best it is not a satisfactory practice to follow. It is possible to use wires while hanging to help hold in place and when a duct is set we then apply the more substantial hangers as shown in either Figure 1 or Figure 2.

Then when concrete or I-beams are met with, various treatments as in Figures 3, 4 and 5 may be used. I-beam construction is not so frequent unless it is in factory heating, where the metal ducts must be suspended from structural steel columns, brackets, beams, etc. In that case, a suitable design must be invented to fit in the given place for supporting what is expected of it. Where running ducts along a wall as in Figure 4, a bracket or hanger similar as shown may be used. On extra heavy ducts, a suspending bracket should be placed underneath also to help support the outer edge and prevent the work from sagging at the far corner. Most shops have their own established practices for hanging ducts, and workmen will have to follow them; as it is those already in practice are of such wide acquaintance with the trade, that little need be said about them, nor is it possible to discover new methods of hanging, unless it is applying certain slants to already established practices. When hanging the ducts care must be taken that they are perfectly straight and that they do not sag or bend inward or outward, or that one corner is higher or lower.

This means that the ends must always be cut square and that the cap strips used must be slid on, thus preventing the pipes from telescoping as is often the case, by careless made pipe, when extra pressure is brought to bear they will slip apart.



Various Methods of Hanging Ducts for Warm Air Heating.

ADVISE AGAINST USING SMOKE DAMPER TO CHECK FIRE

Ottawa.—Domestic fuel problems were discussed at the first meeting of the season of the local section of the Society of Chemical Industry. It was brought out that much of the difficulty experienced in burning peat in hot water furnaces was due to the fact that too much fuel was thrown, thereby checking the long flames which emit the heat.

Checking furnace fires by means of the grill in the fire door in preference to the use of the smoke damper, was advocated. As a matter of fact it was held that the "key" in the pipe should be eliminated entirely. The modern house was wrongly constructed. If the full benefit of fuel was to be enjoyed it would be essential to insulate the plaster and brick walls between which the heating pipes pass.

In the majority of homes the practice of sleeping with a bedroom window open is general, but this necessary practice has resulted in the cold air striking the radiators and chilling the water throughout the heating system. A practical manner of conserving the heat was to throw a rug, gown or other article across the radiator near the window. The resulting conservation in heat would be surprising.

Mr. Hambly showed that to burn one pound of coal required 10 pounds, or 120 cubic feet of air, thus an average furnace theoretically uses 12,000 cubic feet of air daily and on the regulation of the air supply depends the success of the furnace operation. Too much air carries much heat up the chimney.

Forceful Arguments in Plumbers' Advertisements

JEWEL
PIPELESS FURNACE
The Most Efficient and Economical Heating Appliance for the Home
JONES PLUMBING COMPANY
COAL MAY BE SCARCE THIS WINTER
But It Will Help Your Coal Bin Considerably If You Let Us Put Your Heating System In First-Class Condition
Phone 1237
WE WISH TO SERVE YOU
Something For You To Consider
DUFTON & SAUNDERS
PLUMBING AND HEATING
PIPE FITTING
REPAIR WORK
EAVETROUGHING
Let Us Fit Up Yours For You—Payments Can Be Arranged
PADDON COMPANY LIMITED
"RELIANCE"
HOT WATER BOILER.
LONGARD'S Limited
THE PLUMBING AND HEATING of your new home
ERSKINE, SMITH & CO.
When the Cold and Stormy Weather Comes
Will Your Home be Sufficiently Warm?
Heating
Edwards Plumbing Co.
214 Church St.
Phone 119.
Are You Prepared?
COLLUM & SWEET
PLUMBING AND HEATING
Our Plumbing is Guaranteed
O. J. MUNTZ
PLUMBING AND HEATING CONTRACTOR
Agent for GILSON and GOOD CHEER Furnaces
506 DUNDAS ST.
Agent for Scarff's Paints and Varnishes
PHONE 601W

SOME SUGGESTIONS to other plumbing and heating operators for the preparation of seasonable advertising are contained in these samples. The advertisement by Jones Plumbing Co., Windsor, Ont., deals with a pipeless furnace. The advertisement by Erskine, Smith & Co., Ottawa, states that the question of plumbing and heating of the new home is a subject demanding more than a little thought. The best of materials and honest workmanship means the difference between satisfaction and dissatisfaction—"and these two factors are essential to every job we do. Our advice and any assistance we can render is at your disposal in making a decision."

A heating advertisement by Edwards Plumbing Co., Windsor, says: "When the cold and stormy weather comes, will your home be sufficiently warm? To insure proper heating for the winter it is usually best to call in an expert to look over your heating system. It is often possible for him to save you money by changing the system for you—thereby saving fuel costs. If you are in the habit of looking after your own needs and require any article, we will supply you."

A well illustrated advertisement dealing with the various phases of the business, is that by Dufton & Saunders, Stratford, Ont. It deals separately with plumbing, eavestroughing, pipe fitting, repair work and heating installations. Emphasis is laid on the fact that the firm is not a "jack of all trades" but will send a plumber for a plumbing job, a tinsmith for a tinsmithing job, etc.

Under the heading "Are you prepared?" the advertisement by Collum & Sweet, Sarnia, Ont., states: "Winter is just around the corner and unless you have an adequate heating system, you and your family will be obliged to undergo the many discomforts of a cold house."

Advertising that their plumbing is guaranteed, the advertisement by O. J. Muntz, Woodstock, Ont., says: "It doesn't pay to have unreliable plumbing installed in the house. You are in constant worry of defects. At no more cost than ordinary work you can have guaranteed plumbing in your home."

Paddon Co., Ltd., Windsor, have a neat, illustrated advertisement on bathroom fixtures, stating: "The bathroom, once placed in the least desirable space in the home, now occupies the most important position in location, character and equipment. Your new bathroom is worthy of all the study and personal attention you can give it."

Sanitary Engineer
Plumber and Steamfitter of Canada

ESTABLISHED 1907

Member Audit Bureau of Circulations

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Montreal TORONTO, CANADA Winnipeg

Vol. XVI DECEMBER 1, 1922 No. 23

Gas Or Electricity

FROM TIME to time an opinion is expressed that electricity will take the place of gas, and that gas is becoming a "back number."

This opinion is not being borne out by facts. In the United States, there is an increased per capita consumption of gas to the extent of two hundred per cent. over the amount used in the year 1911.

In other words the per capita increase for the 10 years period 1901 to 1911 was 30 per cent., and from 1911 to 1921, 80 per cent. of increase per capita. These figures bear almost the same relationship to the situation in Canada.

Several concerns have established large plants to manufacture gas consuming appliances, gas water heaters, cook stoves and other gas appliances. The outlook for selling gas water heaters, instantaneous as well as storage systems, is very bright.

* * * *

Passing Up Opportunities

PROGRESS is being made along educational lines in respect to better sanitary and heating facilities in cities, towns and rural districts. This effort is supported by action of legislative bodies in having plumbing by-laws passed which make necessary an improved class of fixtures. While in some cases aggressive plumbers have been largely responsible for this trend of popular sentiment, it is a sad fact that there are many wonderful opportunities for plumbing business available which certain other operators are failing to take advantage of. And it frequently happens that the very ones who complain most of poor business are the ones who do not see the opportunities which lie right at their own door.

It is doubtful in view of this state of affairs whether the full value of such educational work is accruing. No such plan will be successful unless the plumber links up his hearty co-operation, and it is his bread and butter to do so. There is no doubt but that many farmers of a mechanical turn of mind will install their own systems if not too complicated, providing plumbers do not show them that this is the kind of a job for a plumber to do. This is a development which plumbers will have to watch with the progress of educational effort. In some cases the rural field is settled rather sparsely and prospects too far apart to make profitable business for the plumber to concentrate on. Educational effort on farmers will, sooner or later, bring them to a realization of the advantages of modern sanitary and heating equipment and if the plumber in the rural districts has kept some literature going by mail to such prospects, he will be in a fair way to get the business. In the more thickly settled rural districts intensive work may be done profitably. In many towns there is a splendid waterworks system installed and few if any sanitary conveniences yet installed in the homes. Here there are sewer connections right into the prospect's property, and yet there are cases where the property owners have never received a call or a line of literature from the local plumber urging them to put in sanitary equipment.

Possibilities in this field linked up with opportunities in cities where property owners are showing an increasing tendency to put in two bathrooms in place of one, and of using higher grade fixtures, provide the plumber with plenty of opportunity for business. It is unlikely that such opportunities exist in the same proportion in any other line of business and the amount of business to be secured rests entirely with the plumber's individual effort.

* * * *

Some Danger Points

THE ACTION of the Ontario Government in evolving a plan whereby farmers who own sixty per cent. or more of their property will be enabled to borrow money for the purpose of improving the sanitary and heating equipment of their homes is a laudable one in many respects, yet it contains dangers that must be avoided. The principle of the plan is not new, it having been followed in Toronto and other cities for some years and recently adopted in Peterboro. In the latter case the cost of the plumbing is spread over a period of years, chargeable in the taxes on the property with interest. The local Board of Health recommends the installations.

The Ontario Government scheme is to loan the money as secured largely from deposits under the new government banking plan, to farmers for the purchase of sanitary and heating equipment. The farmers will have their own choosing and any reasonable grade of fixtures will be allowed to be installed. The Ontario Development Association, which has had charge of loaning money to farmers for other purposes in the past, has charge of this new branch and this body passes on the applications. The fact that farmers must own sixty per cent. of the value of their property is a safeguard and it insures that the property will be of such a nature as to justify this expense.

The danger of such plans in the past has been that a cheap grade of equipment barely able to fill immediate requirements, has been installed. This probably fails to satisfy the tenants in years to come when the novelty has worn off, and with the payments still having to be made regularly some dissatisfaction has been found to result. Then, too, there is just a danger that it will run to other extremes. Farm women may become jealous of a neighbor who may have a better class of fixtures and the "Keeping up with the Joneses" attitude may result in the installation of a grade of fixtures too good for the property in which they are installed, and therefore not bearing their correct relation in value to that of the property.

It will also have to be shown forcibly to farmers contemplating such installations that they cannot take certain parts of the equipment and expect to have a proper working system. The parts are inter-dependent in many respects. Thus it would be highly dangerous to instal modern plumbing fixtures in a house inadequately heated. These are some of the pitfalls which will have to be watched in putting this plan into effect.

Checking Up—A fussy old fellow was making a journey on a branch line. The train had slowed down again after stopping several times. The old man's patience became exhausted, and, taking out his watch, he said to a fellow passenger: "How much is this train overdue?"

"Well, sir," was the reply, "a watch ain't no good; you need a calendar."

Calamity—Mr. Carruthers employed two negroes to keep up the lawns and gardens on his estate. Mose and George worked faithfully together six days of every week. One day noticing Mose was alone at his tasks, Mr. Carruthers strolled out and after watching Mose in silence for several minutes asked:

"Mose, where is George this morning? Hasn't he showed up at all?"

"Why, didn't you all know, boss?" replied Mose, "he's in de hospital?"

"In the hospital? How did that happen?"

"Well, boss, yo' see George he's been tellin' me ever' day for ten days he's gwine lick his wife foh her naggin. Well, yestidy she done overheah him."

Slight Error—The deputy sheriff was trying to break the bad news gently.

"Are you the Widow Jones, ma'am?" he asked the woman who came to the door.

"Widow Jones?" she retorted with asperity. "Not so you could notice it. My old man is workin' back there in his plumbing shop this minute."

"Sorry to have disturbed you then, ma'am," replied the deputy politely. "Guess the boys down to Hoopenholler must have gone and lynched the wrong feller."

Pat was helping the gardener on a gentleman's place, and, observing a shallow stone basin containing water, he inquired what it was for.

"That," said the gardener, "is a bird bath."

"Don't ye be foolin' me," grinned Pat. "What is it?"

"A bath bath, I tell you. Why do you doubt it?"

"Because I don't belave there's a birrd alive that can tell Saturday night from anny other."

FINISH HEATING INSTALLATION

Longard's Limited, of Halifax, have finished the contract for the installation of the heating system in the new Condon Building on Barrington Street in Halifax. This is one of the well-known plumbing and heating engineering firms in the maritime provinces. Their office is on Hollis Street in Halifax.

National Prosperity and Personal Luxury a la Bath

WHEN YOU'VE BEEN PLAYING ONE NIGHT STANDS AND HAVE HAD TO WASH IN CROWDED PULLMAN WASHROOMS
AND IN LITTLE SMALL-TOWN HOTEL ROOMS YOU'VE HAD TO BATHE IN THE WASH-BOWL
-AND IN "GOOD" HOTELS THEY HAVEN'T ANOTHER "WITH BATH" LEFT
-AND YOU SIT AROUND IN DINGY OLD DEPOT WAITING ROOMS THAT HAVE NO WASH ROOM AT ALL!
-AND FINALLY YOU HOP OFF THE TRAIN IN YOUR OWN HOME TOWN
TO YOUR OWN BATH-TUB, LONG HANDLED BRUSH, YOUR OWN BIG SPONGE, SHOWER ETC. OH-H-H BOY! AIN'T IT A GR-R-R-RAND AND GLOR-R-R-RIOUS FEELIN'?
TA TA TA
TYA
TYA
H.G.
BRIGGS

TWO things which have just come to the Editor's attention indicate how widely separated are the two ends which mark the limits each way of possibilities for the sale of plumbing equipment. The cartoon by Briggs is very true to life depicting as it does sanitary conditions in many of the smaller hotels throughout the country. Ask any traveler if he has not found many resting places for a night where the sanitary "inconveniences" have been enough to keep him from taking advantage of the resting facilities. Cracked toilet seats are very common and where is there a greater breeder of disease? Self closing faucets and no stoppers are a common conundrum. Where is the local sanitary engineer that he lets this condition of affairs go on? There is unlimited opportunity here for business.

On the other hand the idea might be carried very far toward the other extreme. In this connection the following item written by a contributor to The Ironmonger, showing up-to-date plumbing practice in one of London, England's, big hotels, is interesting:—

"From week to week I stagger under the attempt to arrive at a clear comprehension of the real financial position of this country. I read the laudatory comment of the New York 'World' on the payment to America of ten million pounds on acount of the interest on our war debt. 'A finer example of financial heroism no nation has ever displayed,' it runs, and forthwith I haul up the British flag as far as it will go. Then I light upon a statement that at the present moment the total of War Savings Certificates at individual credit is over 260 millions. As the flag will not go any higher, I wave it. Then I go out into the common world among the earners and contributors of those vast sums, and find them one and all complaining of bad trade and high taxes. The trade returns bear them out; so do the tax-collectors. I stagger a little, but leave the flag flying. A return informs me we are supporting over a million unemployed persons. Still I let the flag flutter as it will. But when I read the account of the new bath-rooms to be set up in the Savoy Hotel, I confess myself dumbfounded and feel like pulling down that vainglorious, hypocritical emblem of the national character. There are to be one hundred of those bathrooms, of which the walls and floors are to be of colored marble, and the fittings, even the steam pipes, of solid silver. Politicians may thunder as they like at the dangerous times we are passing through, and warn us of the need of economy; those Savoy baths will pass deep into the consciousness of the ordinary man, the labor voter and others such, and—well, somebody ought to explain the matter before he votes accordingly."

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

NEW FIRMS

F. Swab & Co., have commenced business as sanitary engineers, sheet metal workers, etc., at 1107 Weston Road, Toronto.

BUSINESS CHANGES

Saskatoon, Sask.—Cornish & Co. have been succeeded in the plumbing business by S. J. Carter.

FIRE LOSS

Geo. Brandie, plumber, Bothwell, Ont., has suffered fire loss.

W. G. Edge & Co., suffered fire loss at their premises on Richmond St., Toronto.

BUILD UNDERGROUND LAVATORY

Hamilton, Ont.—Construction of underground lavatory at corner Ottawa and Barton Sts. is contemplated by City.

ATTEMPT TO ROB PLUMBER

Stratford, Ont.—An attempt was made to rob J. Commerford's Plumbing shop here.

PERSONAL

Major L. L. Anthes, managing director, Anthes Foundry Ltd., Toronto, has been appointed by the International Relationships Committee, one of five members to represent the American Foundrymen's Association in Paris, France, the first week in September, 1923, at the convention of the International Foundrymen's Association.

PLUMBING BY-LAW AN ISSUE

Ottawa, Ont.—It looks as if the plumbing bylaw and the building bylaw revisions would be issues for 1923. Con. Cameron stated that the committee on the building bylaw had been working right along, but it was not likely that the revision would be completed this year. Con. Champagne asked regarding the plumbing bylaw. It was stated that the special committee would be called to meet at an early date.

OPENS FINE NEW SUPPLY SHOP

St. John, N. B.—W. B. McDonough has opened in St. John, one of the largest and most attractive plumbing supply stores in the maritime provinces. The store is located on Charlotte Street, nearly opposite the entrance to Trinity Church, in a new two-story wooden building. There are two large display windows. Mr. McDonough has on display bath tubs, shower sprays, bath room necessities and lavatory requisites. Associated with Mr. McDonough are two of his sons. His plumbing and heating office is located in the new store, having been removed from Princess Street, near the corner of Charlotte Street.

WANTS SAFETY DEVICE ON KEROSENE BURNER

Windsor, Ont.—Scarcity and high prices of coal are influencing many people to convert coal stoves and furnaces into kerosene burners, and creating a dangerous explosion and fire hazard, Frank Burton, Detroit, commissioner of buildings and safety engineering told the common council. Burton will be given a hearing Friday on an ordinance intended to compel the installation of safety features on make-shift kerosene heaters. Several fires daily are developing from faulty conversions, and the number is increasing, Burton said.

WANT WATER METERS IN MONTREAL

Montreal.—Contending that the installation of water meters throughout the city will work to the advantage of both consumers and the city, Ald. Desroches is fostering the idea of urging the council to adopt the use of meters in the near future. He suggests that, as a tryout, a water meter be installed in the home of each alderman, thereby affording them the opportunity of making a practical test of the practicability of the scheme.

The meter system is in use in a number of municipalities in Canada and the United States, it was stated, and has many champions who proclaim its advantages over the flat rate system. In the latter there is a big waste through neglect, while, with the meters, users are more careful, and at the same time are enabled to have all the water they want at a lesser rate than with the old tariff.

The matter will be considered by the council.

Plumbers' Strike Still On in St. John

Six-Year Strike and Still no Sign of an Ending in St. John—Many Plumbers Have Found Occupation Elsewhere

ST. JOHN, N. B.—It is not often that one learns of a strike lasting for six years and yet no existing indication of an end. Six years ago, the journeymen plumbers of St. John went on strike for four dollars per day of eight hours. Their demand was refused by the St. John Master Plumbers' Association. A number of the journeymen remained at work, but about two thirds went on strike. After a few weeks the men started to return to work, including one of the strike leaders. The international board of the union sent J. W. Bruce of Toronto to St. John to direct the strike on behalf of the men. Mr. Bruce is Canadian organizer for the International Plumbers' and Steamfitters' Union.

One of the tragic incidents of the strike was the murder of Robert Harris Jr., who had remained at work and was employed by F. S. Walker, then in business on Germain Street but now on Church street, in St. John. Mr. Harris was found dying on a St. John street, in the Fort Howe District, after nightfall. He had been attacked from the rear with a club or boulder, and left to bleed to death. He was found and taken to a hospital where he lingered a few hours, and died of a broken skull. Two striking plumbers were arrested and charged with the terrible crime, but little evidence was offered connecting them with the murder and they were freed. They were John O'Brien and Ed. Carland. Another incident of the strike was the burning of the home of W. J. Crawford, master plumber, with office on Union Street. Two of the strikers were arrested and charged with arson, but the jury on the first trial disagreed and on the second trial the two men were acquitted. Little evidence was presented against the men.

The strike has not been settled although most of the men went back to work for their former employers. Others started in business themselves, while still others left St. John for other centres in the maritime provinces and the United States.

OPENS NEW SHOP

St. John, N. B.—C. H. McGowan has opened an office and workroom on Castle Street, St. John, as a plumber. Mr. McGowan has spent many years in the trade. He will specialize in jobbing work.

CONTRACTS AWARDED

Halifax, N. S.—W. S. Craig of Halifax has the contract for installation of the plumbing system in the Condon building, erected on Barrington Street in Halifax to replace a building destroyed by fire. This is a business block of steel and concrete of three stories, located in the retail district of Halifax.

MARITIME PLUMBERS PREDICT GOOD BUSINESS

St. John, N. B.—Master plumbers of the maritime provinces are predicting a good winter in jobbing. The spring, summer and fall of 1922, proved to be superior to the spring, summer and fall of 1921, in the volume of plumbing contracts in the maritime provinces. This is due to the increase in building operations. A further increase is anticipated for 1923, and master plumbers are expecting the best contract year since the war period.

WESTERN ONTARIO NEWS

The installation of a sewage system at Milton, Ont., will be gone into early in the new year by the council.

Williams and Roberts, sanitary and heating engineers, London, Ont., have moved to a new location on Clarence St.

Munro Bros., of Blyth, Ont., were awarded the plumbing and heating contract in connection with large addition to the public school.

E. Luxon, 78 Argyle St., Hamilton, Ont., has plumbing contract for new dwelling being erected on Agincourt St., by Michael Holland.

Dr. J. H. Boyd of Essex, Ont., is preparing plans for new residence and wants prices on heating, plumbing and electrical equipment.

George Brandie, of Bothwell, Ont., sustained considerable loss when the Brunswick hotel, in which he had his office, was destroyed by fire.

The construction of additional sewers costing $15,000 is contemplated at St. Thomas, Ont., and work is expected to proceed during the winter.

T. I. Thompson of Owen Sound, Ont., was awarded the plumbing and heating in connection with the new $185,000 technical school on which work is to be started shortly.

J. H. Plested, 253 Talbot St., London, Ont., wants prices on heating and plumbing and electrical work in connection with new $5.500 dwelling on which work has started.

R. Barry, who recently resigned as manager of the National Gas Company at Ridgetown, Ont., and is leaving for Detroit, was presented with a handsome cabinet of silver prior to his departure.

MAJOR L. L. ANTHES

Managing Director Anthes Foundry, Ltd., Toronto, who has been appointed by the International Relationships Committee one of five members to represent the American Foundrymen's Association in Paris, France, the first week in September, 1923, at the convention of the International Foundrymen's Association.

Plans are being prepared by Architect W. G. Murray, for an addition to the General Hospital at Strathroy, Ont., costing $30,000, and prices will be wanted on heating, plumbing and electrical work.

VOTING ON ST. JOHN SEWERAGE PLAN

St. John, N. B.—The residents of East St. John are voting on the question of installing a sewerage system, an improvement long needed and one which has been strongly urged by the subdistrict board of health. The board is cooperating with the councillors of Simonds and the warden of the municipality, John Thornton. The voters will express their opinion of a plan, which has been prepared, on Dec. 7. It is expected that the proposed system will cost $45.000.

Councillor Mosher says that when plans were considered two years ago the estimate of the total cost was $51,000, but he is of the opinion that the cost now would be somewhat less.

WHITBY SEWAGE PLANT SECOND TO NONE

Whitby.—Most gratifying to the citizens of Whitby should be a statement of Mr. Dallyn, Chief Sanitary Engineer of the Provincial Board of Health, made last week while giving evidence at the Assizes here. Mr. Dallyn stated that the sewage disposal plant in Whitby is second to none in the province, both from the standpoints of maintenance and operation, and that it stands as a model for the smaller towns of the province. This was corroborated by his assistant, Mr. Delaporte. Its exterior and interior appearance was also warmly commended. This is a situation which calls for congratulation of the Public Utility Commission and the superintendent, and of which they may deservedly be proud. When a man of Mr. Dallyn's standing on oath in court makes a statement of the above nature, it is worth a good deal, and serves to indicate to the people of Whitby the fact that the disposal plant is amply justifying its installation and the care expended upon it.

"RECEIPT TAX WILL HANDICAP TRADE"

(Continued from page 19)

in the most autocratic manner, to take effect on January 1st, 1923. In our opinion, it should be suspended, and as we are an active part of the electorate of the Dominion, every retail merchant should do all within his power to let the legislators of our Dominion Parliament understand that, as loyal citizens, we want to help to pay every cent of our war debt, but we must not be hampered and annoyed in our daily business transactions, and be subjected to paying heavy fines. In other words, Governments must be told to keep their hands off business, and allow it to flow as freely and as rapidly as possible through the natural channels of trade.

All Unnecessary Expenses Should be Avoided

"Before we are asked to pay we should be consulted as to what effect any proposed system would have on our business, as the more unnecessary expenses that are put upon us the more the public will be called upon to pay in the end. Every retail merchant knows that when postage stamps are placed on receipts or cheques, or any other documents, for the purpose of paying our war debts, that it is an unbusinesslike system, as we have been led to believe that postage stamps and Inland Revenue war stamps are for entirely different purposes, and if they cannot be kept separate—and it appears that they cannot—this fact alone should be sufficient to condemn that method of the collection of revenue. The present system of placing stamps on cheques, drafts, notes and bills of exchange is bad enough, and, in our opinion, should be abolished without adding the further annoyance by adopting the same system on receipts.

"This legislation, if it goes into effect on January 1st next, will affect all classes alike—farmers, manufacturers, wholesalers, retailers, bankers, the laboring classes and all municipalities and corporations. We are well aware that the Government wants money to pay our war debts but we want it raised in the least annoying manner, and we consider that when we are made partners with the Government in order to collect it, we should be consulted as to how we think the money should be raised, without disturbing our commercial operations."

STANDARD FURNACE INSTALLATION CODE

(Continued from page 23)

Walls shall be not less than eight (8″) inches in thickness, and shall be constructed airtight. Rectangular casing shall be, with least inside dimensions, the same as that of the portable casing of a corresponding size of furnace. Walls shall be carried to the same height as the portable walls, allowing not less than eight (8″) inches between the top of the furnace and the bottom of the top cover. After placing the collars for the warm air pipes, continue the masonry up even with the top of the collars, lay spacing rods of bar iron on edge or angle irons across the furnace top, cover these with sheet iron, cover the sheet iron with masonry and run the side walls four (4″) inches above the masonry bed. A galvanized iron casing bonnet may be used on brick set furnaces.

Provision shall be made in the walls for a manhole to give ingress to heater.

Warm Air Pipes in Basement.

Section 5. (a) All warm air pipes shall be made of bright tin not lighter than IC, or galvanized iron. Side seams shall be locked seams. All joints shall be either double seamed or lapped not less than one and one-quarter (1¼″) inches and such joints shall be beaded and soldered or riveted. All pipes shall be properly secured to ceiling or joist. No solder or riveted joint is required where round pipe slips over the casing collar. Any pipe twelve (12″) inches or greater in diameter shall not be made of material lighter than IX tin or Number 26 U. S. Standard Gauge galvanized iron.

Note 12. It is recommended that all warm air pipes in the basement shall have an upward pitch of not less than one (1) inch per running foot.

(b) No warm air pipe shall run within one (1″) inch of any woodwork unless such woodwork is covered with asbestos paper and the paper covered with tin or iron.

(c) All warm air pipes in the basement shall be provided with dampers not more than two feet from the casing.

(d) Where warm air pipes pass through a masonry wall, a metal thimble shall be provided, having a diameter at least one (1″) inch greater than the pipe, and pipe supported in such a manner that the air space is uniform on all sides.

Wall Stacks

Section 6. (a) Single Stacks. All single wall stacks or wall pipes, heads, boots, ells, tees, angles and other connections shall be made of bright tin or galvanized iron and shall be covered with not less than one thickness of 12 lbs. per one hundred (100) square feet of asbestos paper. All studding and other woodwork facing said pipe shall be lined with metal and metal lath used in place of wood lath. An air space of not less than three eighths (⅜″) of an inch shall be allowed on the two sides nearest the vertical studs. All such pipes shall be braced in a proper manner so as not to obstruct the flow of air but to retain the full capacity throughout. All joints shall be locked and held in place by means of lugs, or straps. No joint shall depend wholly upon solder to make it tight.

(b) Double Stacks. All double wall stacks or wall pipes, heads, boots, ells, tees, angles and other connections shall be made of bright tin, not lighter than IC or galvanized iron and shall be made double, from and including the boot or foot piece in basement to the top of each and every stack and register head on all floors. There shall be continuous uniform air space of not less than five-sixteenths (5/16″) of an inch. which must be maintained between the outer and inner walls of all such pipes and fittings of all kinds, styles and descriptions; such pipes, heads, boots and other fittings to be of the styles, or equal to those accepted by the National Board of Fire Underwriters.

All pipes and fittings either single or double must be secured firmly in place by lugs or straps attached to the outer walls of stacks and fittings, and no nails shall be driven through these stacks or fittings at any point. No wall pipes or fittings shall be used which depend wholly on soldered joints. The various members shall be so made that all joints are locked and soldered and the several members shall be attached to each other with slip joints, which are, for the purpose intended, airtight.

Registers.

Section 7. (a) When baseboard or wall registers are used, they shall be properly and permanently attached to the stack head in such a manner that will prevent any leakage of air between the head and the register.

(b) Floor registers shall be provided either with register borders or double register boxes of tin or galvanized iron with an air space of not less than five-sixteenths (5/16″) of an inch between inner and outer boxes.

(c) Registers for warm air and warm air pipes shall not be located in outside walls. The warm air registers in the various rooms shall be located in or near the inside walls in all cases.

Air Supply to Furnace.

Section 8. (a) The air supply to furnace for warm air heating plants may be taken from outside or from within the building or may be taken partially from outside and partially from within. In no case, however, shall air be supplied to any furnace from any basement or furnace room.

(b) The cold air intake or return where air is taken from within the building shall have a net area throughout its entire length of not less than the combined net area of all warm air pipes leading from the furnace. This may be maintained in one or more ducts.

(c) When the cold air supply is taken wholly from the outside of the building the supply duct at its most contracted area must equal or exceed eighty (80%) per cent. of the combined area of all warm air pipes leading from the furnace.

(d) Cold air ducts shall be constructed of metal, tile or other incombustible material having smooth inner surface and shall maintain a constant net area throughout their entire length and shall be made air-tight. Where a boot or shoe is connected to the casing at the base, the opening shall not extend higher than a line on the level of the grate of the furnace. The width of the shoe shall be of proper measurement to make the area at least equal to that of the round or square pipe to which it is connected.

(e) Wherever the space between joists is used to convey cold air over head, the joists and all wooden surfaces between such joists shall be lined with metal and a sheet metal pan constructed to extend not less than six (6″) inches below said joists. The connection from this pan to the boot or shoe shall be made of galvanized iron not lighter than Number 26 U. S. Standard Gauge, and shall have a transition collar, the top area of which shall be at least ten (10%) per cent. greater than the area of the connecting pipe.

(d) The cold air face or faces shall be made of wood, or metal. When set in floors the top of same shall be flush with floor. Where cold air face is placed in a seat or side wall (whether furnished by owner, general contractor or furnace contractor) the open work of face must extend to within at least one (1″) inch of the floor line.

The free area of cold air faces shall be at least ten (10%) per cent. in excess of the free area of the duct or ducts to which they are connected.

Note 13. The effective area of a vertical cold air face lies within twelve (12) inches of the floor line, hence, the capacity of any vertical cold air face shall be determined by multiplying the base line in inches by not to exceed twelve (12) inches in height and deducting for the grills or cross bars.

Smoke Pipes.

Section 9. (a) The smoke pipe shall be as short and direct as consistent with the location of the furnace. It shall be made of either black or galvanized iron not lighter than Number 24 U. S. Standard Gauge, and of the full size of the collar on the furnace throughout its entire length. It must have no other opening for attaching any fireplace, stove, range, water heater, gas or ventilating connection. It shall be lock seamed or riveted; all joints shall lap not less than one and one-half (1½″) inches and it shall be rigidly secured. Cast iron smoke pipe may be used.

(b) Where the smoke pipe enters the flue, a thimble shall be cemented into the flue and the connections thereto made airtight. Should any smoke pipe come within sixteen (16″) inches of any combustible material, such com-

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Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

Markets at a Glance

MOVEMENTS toward higher price levels are again in the majority on the current plumbing and steam-fitting supply markets. Increased quotations are now in effect on range boilers, and asbestos products in certain quarters, while a similar upward revision is announced on cotton wastes. This latter development has been outlined in former issues of Sanitary Engineer, and is based to some extent upon the recent trend of raw cotton.

A reduction in pig iron prices constitutes the only downward change. Renewed seasonal interest is evident in boiler tubes, while wrought piping continues to display a firm undertone. No definite decision has been reached by Eastern distributors with regard to quoting plumbing supplies f.o.b. Quebec and Sherbrooke.

The call for such products as eavestrough, soil pipe and fittings, conductor pipe, corrugated sheets and similar goods used in construction and repair work is now subsiding, but materials for interior finishing are still moving in satisfactory volume. Furnaces, radiators and heating equipment generally continue to attract seasonal attention.

As an indication of the current trend in basic costs of steel production, the further decline in pig iron is of interest. This condition was outlined in a former issue, however, and is of minor extent. An interesting period is indicated in the steel industry at present, the balance between the ratio of production and that of consumption being apparently threatened through the approach of the customary quiet season.

Sheet markets show little if any change, and interest is centred on the fact that prices on galvanized, black and blue annealed sheets and tin plate will probably remain unchanged for the first quarter of next year. Tin and spelter on primary metal markets are not displaying their former strong tendency,

Montreal Markets

MONTREAL, November 29.—Higher prices on range boilers constitute one of the chief revisions made on the local plumbing and steam-fitting supply market. Discounts off standard list are changed and where net quotations are given a corresponding advance is given. Following the advance in certain asbestos products two weeks ago is the announcement of higher quotations on air-cell pipe covering in all weights. In scrap markets zinc is firmer with prices slightly increased, also scrap rubber. An upward revision is made in cotton wastes. There has been no definite decision reached with regard to quoting plumbing supplies slightly higher f.o.b. Quebec and Sherbrooke although one supply house announces the change. A firmer tendency is noted in galvanized goods. Bar iron and steel, wrought pipe, boiler tubes, pipe fittings, compression goods, soil pipe, radiators and boilers, are unchanged in price, with trade continuing in fair seasonal proportions. Prospects for later business are also said to be better than in recent years.

NO DEFINITE DECISION IN NEW F. O. B. POINTS

Montreal.

As briefly announced in the last issue of Sanitary Engineer, a movement is under way to quote plumbing supplies including fittings of all kinds, enameled ware, soil pipe, closets, range boilers, etc., f. o. b. Quebec and Sherbrooke. Little further development has taken place in this regard during the past two weeks, although one supply house announces that they are now quoting slightly higher, freight prepaid, to these points. Other jobbers state that Montreal figures still govern quotations in the province as a whole, but admit that some agreement may be reached towards the end of the year. Under the suggested change an increase of from 5 to 10 per cent. will be made on certain lines.

HIGHER PRICES QUOTED ON RANGE BOILERS

Montreal.

Through a revision in discounts quotations on both standard and extra heavy range boilers are now quoted at higher figures. The various sizes of standard boilers have a new discount of 40 per cent., and extra heavy 30 per cent. Former discounts were 45 and 35 per cent. respectively. Jobbing houses who quote on a net price basis announce a corresponding advance in prices. Manufacturers state that the new higher levels reached on spelter, which metal figures quite extensively in raw materials for galvanizing purposes, and the fact that heavier gauges of galvanized sheets are scarce and sold on a premium basis, have firmed up the market tone considerably during the past weeks. New quotations are as follows:

RANGE BOILERS:—

5	Gallon	$13.50
12	"	14.00
18	"	15.00
25	"	16.50
30	"	17.50
35	"	20.50
40	"	22.75
52	"	38.00
66	"	60.75
82	"	74.00
100	"	103.00
120	"	117.00
144	"	164.00
168	"	187.00
192	"	210.00

Standard, 40 per cent. Extra Heavy, 30 per cent.

NO FURTHER CHANGE IN COMPRESSION GOODS

Montreal.

While there is still a little easier feeling in the local market for compression goods owing to certain firms quoting an extra discount on some lines, no general announcement of revisions is looked for at the present time. Trade is keeping up in fairly satisfactory volume for this season of the year and raw materials display a firm market tone. The opinion was expressed in one quarter that a steady market would prevail until the end of the year. Prevailing discounts are:

Compression work, standard	45%
Fuller work, standard	30%
Quick opening compression bibbs	43%
Bath cocks, quick opening	41%
Bath cocks, compression	41%
Basin cocks, quick opening	46%
Flatway stop and waste cocks, standard	54%
Roundway stop and waste cocks, st'nd'rd	46%
Brass steam cocks, standard, ¼ in.	50%
Radiator valves, standard	54%
Do., removable discs	54%
Globe, angle and check valves, standard	25%
Gate or straightway	25%
Emco globe valves	33%
Emco check valves	33%
Jenkins globe, angle, check and swing check	10%
Jenkins gate or straightway	16%

Jenkins iron body, globe and angle	15%
Jenkins iron body, gate	25%
N. P. "O" and "S" traps	40%

NEW HIGHER PRICES ON COTTON WASTES

Montreal.

Announcement is now made that from December 4th new higher quotations will rule on cotton wastes. It is understood that revised prices show an increase of from one to one and one-half cent per pound on the various grades. The undertone in the market for these products has been very firm and, as previously pointed out, a revision has been expected at any time.

SCRAP ZINC DEVELOPS FIRMER TENDENCY

Montreal.

The continued stronger tone of spelter on primary metal markets is now reflected to an extent in the scrap market, and quotations are now slightly higher. Rubber is also showing a little spurt after a prolonged period of quietness. Prices on this commodity are also advanced one-half cent. per pound. There is a slight improvement in the buying movement, somewhat more interest being displayed on the above materials, also in non-ferrous metals. Dealers state that consumers are anxious in many instances to anticipate requirements before the closed winter weather. However, this tendency is not noticeable on iron and steel waste, business in these lines being still limited. Following are average dealers' buying prices:

WASTE MATERIALS—	
Automobile Tires	0 50
Rubber shoes	0 02½
Yellow brass	0 05 to 0 06
Red brass	0 08¾
Light brass	0 04
Scrap zinc	0 04½
Lead, heavy	0 04½
Lead, tea	0 03
Light copper	0 08½ to 0 09
Heavy copper	0 11½
Wrought iron, R. Rd., No. 1 per gr.ton	10 00
Malleable scrap (ton)	9 00 to 10 00
Pipe scrap (ton)	7 00
Heavy melting steel	9 50 to 10 00
No. 2 busheling	3 00
Boiler plate	8 00 to 9 00
No. 1 machinery cast	20 00 to 22 00

PIPE FITTINGS STILL IN GOOD DEMAND

Montreal.

A fair amount of business is still reported in pipe fittings, the milder weather up until a week or so ago allowing building construction to proceed to the stage where fittings are in demand. A steady market tone is said to prevail on these products, and following are present discounts:

PIPE FITTINGS—	
Cast iron fittings	27%
Plugs, cast iron	27%
Do., solid	27%
Do., countersunk	27%
Bushings, cast	30%
Do., malleable	30%
Unions	45%
Flanged unions	27%
Flanged fittings	27%
Dart unions, black	33 1-3%
Dart unions, galv.	12½%
Nipples, ⅛ to 4", close and short	55%
Do., long	60%
Do., 4½ to 8", close and short	45%
Do., long	50%
Couplings, 4" and under	25%
Do., 4½" and larger	5%
Malleable Fittings—	
Piece list effective June 1st, 1922. Discount 50 per cent.	

ASBESTOS PIPE COVERINGS HAVE REVISED DISCOUNTS

Montreal.

Following the advance in magnesia pipe covering and asbestos sheathing two weeks ago is the announcement of higher prices on air cell pipe coverings, to two, three and four ply. Discounts in each case are revised and the increases shown, are from twenty to twenty-five per cent. A firm undertone remains in the market for these products. Following are present discounts:

ASBESTOS PRODUCTS—	Off list prices
2 ply pipe covering	57½%
3 ply pipe covering	55%
4 ply pipe covering	50%
85% magnesia	40%
	Per bag
Boiler covering	1 50
	Per 100 lbs.
Asbestos sheathing	7 75 8 25

FAIR MOVEMENT CONTINUES IN BOILER TUBES

Montreal.

Current quotations on boiler tubes are unchanged, and a much steadier market is recorded than has been evident during past months. There is a fairly firm undertone in these products, and while the movement at the present time is fair a further improvement in demand is looked for after the first of the month when repair work usually commences, the close of navigation being one of the first factors to stimulate sales. Deliveries from the mills were reported as slower a few weeks ago, but stocks are now in fairly good shape. Following are average local quotations:

BOILER TUBES—	Seamless	Lapweld
1 inch	20 00	....
1¼ inch	22 00	....
1½ inch	21 00	....
1¾ inch	24 50	24 00
2 inch	21 00	19 75
2¼ inch	24 00	22 25
2½ inch	27 00	23 25
3 inch	33 00	29 50
3½ inch	38 00	34 25
4 inch	49 00	43 50

FAIR PROSPECTS FOR SALE OF ENAMELED WARE

Montreal.

No changes are made in quotations on enameled ware, the nominal discount of 33-1/3 per cent. still being given, although unsettlement is again rumored among the trade. This condition of affairs seems to improve for a period, but only for a short while when price concessions are again offered for attractive business. Distributors, however, state that indications point to fairly active trade during the winter months, prospects being brighter at this time than in recent years. List prices and average discounts are:

ENAMELED WARE—			
Sinks, roll rim—			
18 x 30			$23 00
Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$ 7 50	$ 7 40	$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide			51 40
Bath tubs, 5½ feet.			57 10
Lavatories—			
17x19 in. Apron F139 or P4045			15 80
18x24 in. Apron F154 or P3845 or P3847			23 60
18x21 in. Apron F169 or P4205			17 60
17x19 in. Roll rim. F241 or P4345			12 60
Less 33 1-3 per cent.			

QUOTATIONS UNCHANGED ON CLOSET COMBINATIONS

Montreal.

Current trade in closet outfits, as in other lines of enameled ware, continues fairly satisfactory for this season of the year, with building construction promising quite favorable conditions for a continued movement in the following months. No definite decision has been reached to change quotations to higher levels for other points outside Montreal, although one distributor stated that they are now quoting slightly higher net prices for Quebec and Sherbrooke.

CLOSET COMBINATIONS—	each
Low down outfits,	25 00
Closet, standard outfit, oak	26 00
Do., post hinge seat	26 00
Do., oak vitro or Pussyfoot	26 20
Do., post hinge seat	28 45
Do., mahogany vitro or Pussyfoot, post hinge seat and cover	28 45
Do., vitreous china, oak post hinge seat and cover	29 50
Do., vitreous china, mahogany post hinge seat and cover	29 50
Do., white Vitro mahogany post hinge seat and cover	28 70
Mahogany post hinge seat and cover	29 50
Do., enamelled iron tank, oak post hinge seat and cover	29 50
Do., enamelled iron tank, oak post hinge seat and cover	29 50
post hinge seat and cover	1 25
Add for ⅜ in valve on supply pipe	0 60
Add for spud	1 50
Add for reverse trap bowl	7 00
Add for syphon jet bowl	0 80
Deduct for supply pipe	0 60
Deduct for floor hinge	
CLOSET BOWLS—	
Richelieu bowl	8 50
Washdown bowl with spud	10 60
Reverse trap bowl with spud	11 35
Syphon jet bowl with spud	16 25
CLOSET SEATS—	
Oak post hinge seat and cover	3 85
Oak wood strip seat and cover	3 50
Mahogany finish post hinge seat and cover	4 05
CLOSET TANKS—	
Low down, oak vitro with fittings, less seat	12 25
White vitro or Pussyfoot with fittings, flush elbow and supply	15 65
Vitreous china tank with fittings, flush elbow and supply	19 00
Enamelled iron with fittings, flush elbow and supply	16 50

SHEET MILLS ANNOUNCE UNCHANGED PRICE LEVELS

Montreal.

Interest in the local sheet market is now centered around the announcement made by the Steel Corporation that prices for the first quarter on galvanized, black and blue annealed sheets and tin plate will remain unchanged. Present price levels on tin plate are said to be firm but the decision covers all lines. Advices from England have also been received to the effect that quotations for spring on galvanized sheets will be slightly higher. These developments change the local situation but little, if any, although they may tend to steady the market, according to local distributors. There is, however, a likelihood of slightly lower prices, especially on black sheets because of comparatively heavier stocks and a quieter period ahead.

With the last cargo of English sheets on the wharf, further shipments are not expected from this source for some time owing to it being necessary to ship by rail. Importers, however, are of the opinion that the trade will be well looked after in view of the usual slacken-

ing in demand. The higher levels of spelter on metal markets continues to be a prominent factor in the market for galvanized, and to some it appears that a firm undertone will be maintained. Average prices locally are unchanged as follows:

BLACK SHEETS—		
10 gauge, base	4 00	4 25
12 gauge, base	4 10	4 35
14 gauge	4 20	4 45
16 gauge	4 30	4 55
18-20 gauge	4 55	4 80
22-24 gauge	4 60	4 85
26 gauge	4 65	4 90
28 gauge	4 75	5 10

Sheets, 36" wide, 10c. per 100 lbs. extra.

GALVANIZED SHEETS—		
Queen's Head—		
28 gauge	6 75	7 25
26 gauge	6 50	7 00
24 gauge	6 20	6 70
22 gauge	6 15	6 65
18-20 gauge	5 90	6 40
Other Brands—		
10¾	6 50	7 00
28 U. S. gauge	6 00	6 50
26 U. S. gauge	5 75	6 25
24 gauge	5 60	6 10
22 gauge	5 60	6 10
18-20 gauge	5 40	5 90
16 gauge	5 25	5 75

Theses prices are for full bundles, an extra charge of from 25c to 35c is made for broken lots. Extra for sheets 3 ft. wide, 28 gauge and 10¾ oz., 20 cts. per 100 lbs. Further extra for sheets 4 ft. wide, according to gauge.

TIN PLATE—Coke	
20 x 28 x 100 lb. basis	12 25
20 x 28 x IC, 112s	12 75
20 x 28, IX, 112s	15 00
20 x 28 IXX, 56s	8 50
20 x 28 IXXX, 56s	10 00

TERNE PLATE—	
20 x 28 IC, 112s	12 50

CANADA PLATE—	
Dull, 52s	4 85
Dull, 60s	4 90
Blued, 52s	5 10
Blued 60s	5 15
Welsh, polished, 52s	6 50
Welsh, polished, 60s	6 75
Galvanized, 52s	7 25
Galvanized, 60s	7 75

LITTLE FIRMER TONE IN CORRUGATED SHEETS

Montreal.

Although trade in corrugated sheets is now quieter with the first appearance of winter weather, there is a slightly improved tone owing to the stronger tendency in sheets through higher spelter prices. This tendency is looked upon as a factor which will steady the market at least when quieter trade has a tendency to weaken the situation. Stocks are in fair shape, although there is said to be some difficulty in securing heavier gauges of flat sheets. List prices and unchanged discounts are the following:

CORRUGATED SHEETS—	Per 100 Sq. Ft.
No. 28 gauge	6 50
No. 26 gauge	7 00
No. 26, U. S. gauge	8 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50

Less 10 per cent.

Lighter than 24 gauge and wider than 27 inches, 75c. per square extra.

PRICE TREND OF IRON SOMEWHAT UNCERTAIN

Montreal.

With general business in iron and steel easing up as the season advances there appears to be more likelihood of a weaker tone in the market. Certain distributors have pointed to existing levels as being very representative of replacement costs, and a steady tone was anticipated. However, pig iron displaying a weaker tendency would seem to indicate a softening tone in finished products. On the other hand distributors of products from mills to the south state that what little construction work is under way is demanding supplies sufficiently to tax present stocks, and shipments are slow. This would naturally tend to strengthen the market, but whether or not this call for supplies will continue for any length of time is considered problematic. No change is made in local prices and following are present quotations:

BAR IRON—		
Common bar iron, 100 lbs.		3 15
Refined iron		4 65
Irish finish machinery steel		3 20
Mild steel		3 15
Single reeled machinery steel		5 25
Band steel	3 50	3 65
Spring steel	4 75	8 50
Sleighshoe steel		3 15
Tire steel		3 35
Harrow tooth steel		3 30
Toe caulk steel		4 05
Mining tool steel, per lb.		0 20½
Black Diamond tool and cast steel, per lb.		0 20½

NOTE—Refined iron is approximately $1.50 per 100 lbs. over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs extra.

SLIGHT EASING IN SOIL PIPE MARKET

Montreal.

Manufacturers in describing the undertone of soil pipe and fittings refer to a slight easing in the market due to the weakening in pig iron prices, and a slackening in demand for the finished product. Trade has continued fairly active up until the past week or so, but the colder weather has brought about a slower movement. The future price trend of these products will largely depend on further developments in the market for raw materials, and a local producer stated that any further decline in pig iron would in all probability mean a recession in soil pipe and fittings:

SOIL PIPE—	
2 and 3 inch	35%
4 inch	35%
5 and 6 inch	35%
8 inch	net
FITTINGS—	
2 to 6 inch	45%
8 inch	net

WEAKENING IN METALS AFFECTS LEAD PRODUCTS

Montreal.

Tin and spelter on primary metal markets are somewhat easier with a sharp decline in prices recorded during the past week. Although there is little trace of continued weakness in either market, the fact that both metals are not on their former high levels has caused a little softer tone in lead and zinc products, especially zinc sheets and solders. These lines have been very firm in recent weeks, but a steady market tone is now presented.

Unchanged price levels are the following:

LEAD AND ZINC PRODUCTS—	
Lead pipe, per 100 lbs., up to 2"	14 00
Do., 2" to 8"	15 00
Do., 8" and over	16 00
Lead waste, per 100 lbs.	15 00
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	15%
Lead wool, lb.	**0 13½**
Lead sheets, 2½ lbs., sq. ft. lb.	0 11
Lead sheets, 3 to 3½ lbs., sq. ft. lb.	0 10¾
Do., 4 to 8 lbs., sq. ft. lb.	0 10
Cut sheets, ¼c. lb. extra and cut sheets to size, ¾c. lb. extra.	
Solder, guaranteed, lb.	0 26½
Do., strictly, lb.	0 23½
Do., commercial, lb.	0 22½
Do., wiping, lb.	0 22½
Do., wire, lb.	0 36
Zinc, sheets, casks	0 11
Do., broken lots	0 11½

TIN AND SPELTER REGISTER PRICE DECLINE

Montreal.

Ingot metal markets are reported to be continuing in a quieter state and certain metals have shown a sharp decline in prices, notably tin and zinc. This is not surprising in view of advances which were previously recorded, and a period of dullness is looked for during the next few weeks.

TIN.—Following a sharp decline in this metal the market is now steadier in tone. The immediate future is looked upon as hard to discern but it is thought that the market may be irregular with narrow fluctuations. This, of course, will depend to some extent on whether the U. S. still have very much to buy over the next few months. Local quotation 41 cents.

COPPER.—This metal remains quiet with New York quoted at about 14 cents for electro. London is slightly lower but this is chiefly owing to the advance in Sterling exchange. December will probably be a quiet month and little change in price is expected. Local prices are unchanged at 17¾ cts. for electro, 17½ cts. for casting.

LEAD.—Lead has continued quite steady and the undertone is firm. The trust price in the U. S. has been advanced another 10 points, with demand continuing satisfactory. The English market is also firm and there is no surplus of supplies reported in that market. Locally this metal is steady at 7¾ to 8 cents.

SPELTER.—East St. Louis has recovered somewhat after showing a sharp decline last week which carried prices down one-half cent from previous levels. Production is increasing both in the U. S. and Europe and it is thought that this will have an effect on prices. At the same time there is no great surplus anywhere and this should offset any easier tendency through increased production. Quotation is firm at from 9¾ to 10 cts.

ANTIMONY.—Antimony is very dull both in the United States and locally with the market unchanged at 7½ cts. for high grade English and 7 cts. for Chinese.

ALUMINUM.—There is a slightly firmer tone in this metal on outside markets but little or no change is noted locally and quotation remains at 22 cents.

Toronto Markets

TORONTO, November 29.—An upward trend is again noted in the market for sanitary and heating goods, higher price levels appearing on range boilers and cotton wastes. The development in cotton wastes has been foreshadowed in former market reports and reflects to some extent the condition of raw cotton. The discounts on both standard weight and extra heavy range boilers have been revised, thus bringing a readjustment in net prices. A firmer market is also displayed in asbestos products, but existing quotations are unchanged. It is noted that quotations on radiator valves are not uniform, certain distributors adopting the former levels and a range of four points is appearing in local discounts. Pig iron prices are again reduced. Wrought piping continues on a firm market, and renewed seasonal interest is displayed in boiler tubes.

UPWARD REVISION IN RANGE BOILER PRICES

Toronto.

Through a revision in the discounts, higher price levels are now in effect on range boilers. The revised quotations are list less 40 per cent. on the standard weight boiler and less 30 per cent. on the extra heavy. The former discounts were 45 and 35 respectively. This change reflects the firmer tone which has pervaded the market during recent weeks, the movement of range boilers also reaching fairly brisk proportions. Manufacturers point out that raw materials have advanced to a relatively greater extent than have quotations on the finished goods. The present condition of the market is described as firm at the new levels, which follow:

RANGE BOILERS—

Size.	List Price.
5-gallon	$13 50
12 to 15 gallon	14 00
18-gallon	15 00
25-gallon	16 50
30-gallon	17 50
35-gallon	20 50
40-gallon	22 75
52-gallon	38 00
66-gallon	60 75
82-gallon	74 00
100-gallon	103 00
120-gallon	117 00
144-gallon	164 00
168-gallon	187 00
192-gallon	210 00

Discounts, Standard weight, 40 per cent.
Extra heavy, 30 per cent.

ZINC SHEET PRICES AGAIN CLIMB UPWARD

Toronto

Zinc sheet prices also show an advance this week, quotations on No. 9 being advanced to 12 cents per pound. This development reflects the steady climb of spelter in the primary metal markets.

QUOTATIONS ON COTTON WASTES NOW ADVANCED

Toronto.

As outlined in former market reports, prices on cotton wastes are now anvanced. The average increase is between one-half and one cent per pound. The revised levels are effective from December 4. Higher quotations now prevailing on materials from which cotton waste is made are given as the principal factor in making the advance, this also reflecting the recent climb of raw cotton prices. New prices are as follows:

COTTON WASTES—

Cream, polishing	0 19
White, XXX	0 19
XX	0 17
X	0 16
XC	0 14½
XXX, extra	0 17
XX, grand	0 16
XLCR	0 15
X, Empire	0 13½
X press	0 12
Colored, No. 1	0 13½
No. 17	0 12½
No 1A	0 11½
No. 1B	0 10½
Fancy	0 14
Lion	0 12½
Standard	0 11
Popular	0 09½
Keen	0 08

Above lines subject to trade discount for quantity.

RAW MATERIALS STILL GOVERN PIPE MARKET

Toronto.

Conditions in the steel industry remain the controlling factor in the current pipe markets. Delivery of raw material is still a governing element which serves to maintain prices on a firm basis. Piping is also moving well for this time of the year, but chiefly on account of the close of the season, dealers are apparently not ordering for stock. Material still in demand, however, is notably several weeks behind in delivery, due to primary causes. List No. 57 remains in effect on domestic markets.

WROUGHT PIPE

Price List No. 57. November, 1922.

Standard Buttweld Pipe S/C

Per 100 ft.

Size	Steel Blk.	Gen. Galv.	Wrot. Iron Blk.	Wrot. Iron Galv.
⅛ in.	6.00	8.00	....	....
¼ in.	3.96	6.00	7.20	9.30
⅜ in.	3.96	6.00	7.20	9.30
½ in.	5.02	6.55	7.31	8.93
¾ in.	6.10	7.82	8.86	10.70
1 in.	8.67	11.22	12.75	15.47
1¼ in.	11.73	15.18	17.25	20.93
1½ in.	14.03	18.15	20.63	25.03
2 in.	18.87	24.42	27.75	33.67
2½ in.	29.84	38.61	....	....
3 in.	39.02	50.49	....	....
3½ in.	50.60	64.40	....	....
4 in.	59.95	76.30	....	....

Standard Lapweld Pipe S/C

Per 100 feet.

	Blk. Steel	Galv. Gen.	Blk. Wrot.	Galv. Iron
2 in.	22.20	27.75	31.08	37.00
2½ in.	32.76	41.54	46.80	56.16
3 in.	42.84	54.32	61.20	73.44
3½ in.	51.52	65.32	73.60	88.32
4 in.	61.04	77.39	87.20	104.64
4½ in.	71.12	90.17	1.07	1.27
5 in.	82.88	105.08	1.24	1.48
6 in.	1.08	1.36	1.61	1.92
7 in.	1.40	1.79	2.07	2.50
8L in.	1.48	1.88	2.18	2.63
8 in.	1.70	2.16	2.51	3.02
9 in.	2.07	2.62	2.97	3.59
10L in.	1.92	2.43	2.82	3.39
10 in.	2.47	3.13	3.63	4.37

ANOTHER DECLINE IN PIG IRON

Toronto.

As outlined in former issues, pig iron continues on a weaker trend and the further recession foreshadowed in former market reports has materialized this week. The extent of the decline on domestic centres is $1.00 per ton, this revision bringing present levels to $32.80. The movement of pig iron quotations is interesting from the viewpoint of production costs entering into numerous other manufactured products.

MORE ACTIVITY EVIDENT IN BOILER TUBES

Toronto.

A fair amount of activity is now generally evident in boiler tubes. The recent readjustment of prices indicated a firmer tone, which has been followed by seasonal interest in tubes, especially for repair work. The prevailing trend bears out the earlier indications of distributors that a recovery in the market would most probably develop at this time of the year. Following are average prevailing quotations:

BOILER TUBES—

Size	Seamless.	Lapweld
¾ inch	$19 00	$.....
1 inch	20 00	.....
1¼ inch	22 00	.....
1½ inch	24 00	.....
1¾ inch	24 00	23 00
2 inch	22 00	19 00
2¼ inch	24 00	21 50
2½ inch	27 00	23 50
3 inch	34 00	28 50
3¼ inch	36 00	33 00
3½ inch	38 00	33 00
4 inch	50 00	42 00

MALLEABLE PRICE LIST IN UNIFORM EFFECT

Toronto.

Certain jobbing houses who have hitherto maintained prices per pound on malleable fittings are now adopting the unit list quotations. This gives a separate price on each fitting, and is described as rendering it much easier for basing costs on these products. The prevailing discount is less 70 per cent. on classes A, B and C. While the new piece list on malleable fittings was adopted in most quarters in June, 1922, the present announcement renders it more uniform.

PIPE FITTINGS—	Per Cent.
Cast iron fittings	27
Plugs, cast iron	27
Do., solid	27
Do., countersunk	27
Bushings, malleable	30
Do., cast	30
Unions, ¼ in. to 2 in	45
Do., ⅛ in., 2¼ to 4 in.	45
Flanged unions, std.	27
Flanged Fittings	30
Dart unions, blk., ¼ to 2 in.	34
Do., ⅛ in., 2¼ to 4 in.	23
Do., galvd., add to black	30
Nipples, blk., and galvd. ⅛ to 4 in. close and short	55
Do., 4½ in. and larger	45
Do., long, ⅛ in. to 4 in.	60
Do., 4½ in. and larger	50
Do., running thread	35
Couplings, 4 in. and under	25
Do., 4½ in. and larger	5

MALLEABLE FITTINGS—
New piece list, effective June 1, 1922.
Discounts, Classes, A.B. and C, less 70 per cent.

PRICES NOT UNIFORM ON RADIATOR VALVES

Toronto.

Although an upward change was announced several weeks ago in the quo-

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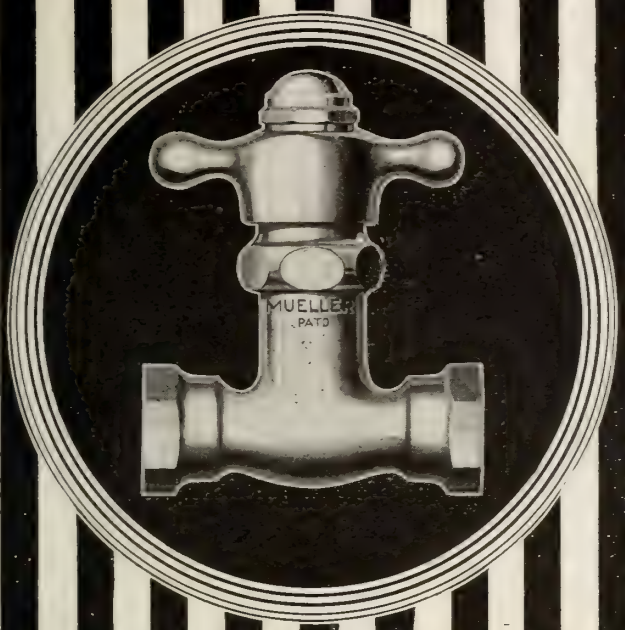

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The wide range of design, the uniform quality and the tested worth of each article make it a pleasure for plumbers to sell and install *MUELLER* goods. The precision with which every thread and joint is finished insures satisfaction to the user and saves time for the plumber. See A-1240, A-1245, A-1513 and A-1517.

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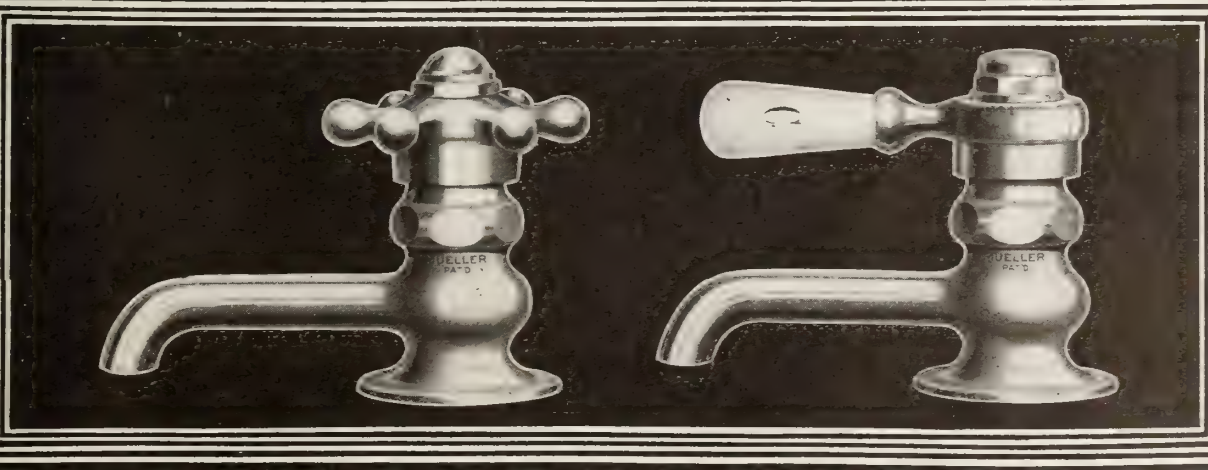

TORONTO MARKETS

(Continued from page 40)

tations on radiator valves, discounts being revised from 58 per cent. to 54 per cent., it is noted that certain manufacturers are still maintaining the previous level of 58 per cent. off. Thus the prevailing price shows this range in the local market, but the opinion is expressed that a uniform basis will be arrived at in the near future. Brass compression goods are described as recording a fair share of activity for this time of the year, the movement being better than former seasons in this month. This is, of course, attributed to the fall construction program and the fact that many buildings are being rushed to completion.

VALVES—	Per cent.
Compression work, standard	45
Fuller work, standard	30
Bath cocks, compression	41
Do., Fuller	25
Flatway stop and wastecocks, stand'd.	54
Roundway stop and waste cocks std.	46
Brass steam cocks, standard ½" to 2"	50
Do., 2½" to 3"	43
Globe, angle and check valves, std.	25
Mueller globe, angle and check	25
Mueller composition disc steam valves	33
J.M.T. valves, screwed	10|10
J.M.T. gate valves, screwed	16|10
Jenkins gate or straightway, screwed	16|10
Jenkins, globe, screwed	10|10
Radiator valves, standard	54
Do., removable disc	54
Emco, J. D., rad. valves, screwed	33
Emco swing check, ⅜" and ½"	40
Do., other sizes	33
Webber gate valves, screwed	33
Emco globe valves, std.	25
Emco globe valves, J.D., screwed	33
Basin Cocks—	
No. 0 and 1 Fuller pattern	30
Quick opening No. 3633	50
No. 3623, plain or index handle	34

IMPROVED TRADE OUTLOOK IN ASBESTOS PRODUCTS

Toronto.

The outlook for the asbestos industry is described as brighter now than it has been during the past two years. Dominion mines are stated to be operating at an average capacity of around 50 per cent., with producers reporting an increasing volume of inquiry. It is also pointed out that, while stocks are in fairly good shape, yet the improvement in demand has tested the condition of supplies to some extent, owing to fuel conditions and shipping facilities. Magnesia pipe covering is now quoted at 40 per cent.

ASBESTOS PRODUCTS—	
Pipe Covering—	
Air cell, 4 ply	60 per cent. off list.
Air cell, 3 ply	65 per cent. off list.
Air cell, 2 ply	67½% off standard list.
Boiler Covering	$1.50 per bag.
Asbestos Sheathing	$7.75 per 100 lbs.
Magnesia pipe covering	less 40 per cent.

STEEL LINES RESPOND TO MATERIAL TREND

Toronto.

A summary of the sheet market this week shows raw material prices, notably coke and pig iron, now working lower and lines of finished steel are responding slightly. This accounts for the recent downward trend to some extent, while there is also evident a feeling among buyers to await the completion of this process. Trade in sheets is described as fairly good, although it is recognized that the quieter season lies ahead. An undercurrent of firmness is still apparent, however. Quotations remain steady at the recently-revised levels, which follow:

GALVANIZED SHEETS—	Premier and Apollo
10¾ oz.	6 65
U. S. 28 base	6 25
U. S. 26 base	5 95
22 and 24	5 80
18 and 20	5 65
16	5 50
12 and 14	5 35
	Queen's Head
28 gauge base	7 15
26	6 75
24	6 45
22	6 30
	Fleur de Lis
28 gauge, base	6 90
26	6 50
24	6 20
22	6 05

An extra 40c. per 100 lbs. is charged for Keystone and Premier bands copper-bearing sheets.

An extra is now charged on galvanized sheets. 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown in 20c. per 100 pounds.

BLUE ANNEALED SHEETS—	
10 gauge, base	4 20
12 gauge	4 25
14 gauge	4 30
16 gauge	4 35

BLACK SHEETS—	
18-20 gauge	4 90
22-24 gauge	4 95
26 gauge	5 00
28 gauge	5 10

A charge of 25c. per 100 lbs. is made for less than case lots. An extra 10c. per 100 lbs. is also charged on sheets 26 in. wide.

QUIET SEASON FOR CORRUGATED SHEETS

Toronto.

Now that the quiet season has arrived for trade in corrugated sheets, much interest is attached to the relative market in flat sheets and the trend of prices in this direction. The announcement that no change is contemplated in flat sheets for the first quarter of 1923 indicates that the industry is on a more or less steady basis, with the probability that efforts will be made to maintain existing domestic levels. In corrugated, however, the weakness in certain gauges has passed on owing to lighter demand. An improvement is looked for in many quarters as it is noted that other galvanized products have recently been advanced in price. The general trend in the steel industry, however, is for current levels to be maintained by producers in the face of an easier tendency to basic materials.

CORRUGATED SHEETS—	Per 100 Sq. Ft.
No. 28 gauge	6 50
No. 26 gauge	7 00
No. 26, U. S. gauge	8 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50

Less 10 per cent.

Lighter than 24 gauge and wider than 27 inches, 75c. per square extra.

ONLY ROUTINE DEMAND FOR SCRAP MATERIALS

Toronto.

Scrap metals are in routine demand, and prices have not shown much change. There have been numerous inquiries for copper and red brass scrap, and a larger proportion of sales has taken place. There is not, however, sufficient demand to take care of the stocks held by dealers, and in consequence the market is a little easier.

There has been little demand for ferrous scrap, even cast scrap being rather difficult to sell to customers, due to easing in pig iron.

Scrap rubber business has been confined to the same few items as previously. The following are the usual averages of dealers' buying prices for large quantities:

SCRAP MATERIALS—		
Scrap Iron		
Heavy melting steel		11 00
Scrap pipe		6 00
Steel turnings		10 00
Malleable scrap		11 00
Rails scrap		11 00
Net tons—		
No. 1 cast		18 00
Stove plate		14 00
Car wheels(std)		16 00
Scrap Metals		
Heavy copper wire		11 00
Light copper		9 00
No. 1 composition		9 00
Red brass turnings		7 00
Light brass		3 50
Heavy yellow brass		5 00
Heavy lead		4 50
Tea lead		3 00
Scrap zinc		4 00
Scrap Rubber		
Boots and shoes	2 00	2 25
High rubber boots	1 25	1 50
Auto tires	0 25	0 50
Solid tires	0 60	1 00

TIN PLATE PRICES ON STEADY BASIS

Toronto.

The announcement by Steel Corporation interests that no changes are made in tin plate prices for the first quarter of 1923, is also one of the chief factors in the domestic tin plate market. Quotations have remained on a fairly firm basis throughout recent weeks, and with increased interest in these products it is expected that current levels will likely hold for the balance of the period. More interest was attached to the quotations for the first quarter owing to the delay in stating these levels and also the rumors that some increases would come into effect. Bookings are made a considerable period ahead.

PLATES, CANADA—	Per box
Ordinary, 52 sheets	4 90
Dull, 60 sheets	5 00
Blued and oiled, boxes 52's	5 50
Do., boxes, 60's	5 60
WELSH CANADA PLATES—	
Cold polished, 18 x 24, 52's	6 25
Cold polished, 18 x 24, 60's	6 50
PLATES, COKE TIN—	
IC, 20 x 28, 112 sheets	12 45
IX, 20 x 28, 112 sheets	15 00
IX, 20 x 28, 56 sheets	8 50
PLATES, CHARCOAL TIN—	
IX, 20 x 28, 112 sheets	10 00
IXX, 20 x 28, 56 sheets	12 00
PLATES, TERNE—	
IC, 14 x 20, 112 sheets	12 00

SUSTAINED ACTIVITY IN BAR IRON MARKETS

Toronto.

Local activity in bar iron and steel is described as very good for this time of the year. There is a uniform movement in all departments, which compares well with the volume transacted last month. It is pointed out that warehouses in the month of November last year were in a more or less dull condition. Prices remain unchanged on the local market. Recent reports from southern primary centres record the

(Continued on page 44)

Read what Mr. Brian Says

M. A. BRIAN
PLUMBING AND HEATING
147 SANDWICH STREET
WINDSOR, ONT. February 7th 1922.

Henderson Business Service,Limited,
P.O.Box 123,
Brantford, Ontario.

Dear Sirs:-

I enclose you my Cheque for $54.35 covering payment in advance for one Years Business Service of your Re-Sale Price Sheets to February 9/23,less 6% on Contract Price for Year of $55.00,and plus 15¢ Exchange added to cheque.

I have found your Sheets all that you claim for them and in fact couldn't well get along without them,as they are quick action and right on the right Spot at the right time,and here wish to thank you for the prompt and continuous and efficient service rendered to date.

Yours truly,
M.A.Brian.

Your Order Form enclosed and Signed and Addressed under date of February 9/22.

about the Henderson Business Service.

We value this letter highly because Mr. Brian has used our service for over 3 years and is a successful Sanitary Engineer with a good credit rating. The letter came in unsolicited and is only one of many received from different parts of the country. If you are skeptical, write Mr. Brian yourself. We are sure he would be glad to answer your letter.

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We furnish you with a large loose leaf leather covered book containing suggested **Selling** Prices on over 3,000 items used in the plumbing and heating business. From a 1/8 cap to a bathtub. As market prices change we change the sheets in your book so that it is always up-to-date. It saves your time and we will absolutely guarantee you a profit on every article leaving your establishment. The cost of this service is 10 cents per day—the price of a cigar.

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TORONTO MARKETS

(Continued from page 42)

fact that steel manufacturers thus far have been fairly successful in resisting efforts to weaken prices, but the pressure of buyers is increasing. They are using as a lever in this direction the current weaker tone in pig iron, which has again declined.

IRON AND STEEL—		
Mild steel bars, base	3 25	3 40
Mild steel bands, 3-16 base	3 75	3 90
Bar iron, base	3 25	3 40
Angle, iron base	3 35	3 50
Horseshoe iron	....	3 90
Tire steel	....	3 50
Spring steel	7 00	8 00
Toe caulk iron		4 10
Hoop Steel	....	4 75
Norway iron		12 50
Crucible cast sheet steel		28 00
Mining Drill steel		18 50
Cast tool steel, high grade		30 00
Sleigh shoe steel	....	3 40

SEASONAL AVERAGE IN SOIL PIPE MARKET

Toronto.

Business in soil pipe fittings is naturally quieter than it was formerly, owing to the lateness of the season. Current trade, however, is described as keeping up to a fair average for this time of the year. The basic materials continue on a steady trend and no change has been made in prevailing market levels. Discounts remain as follows:

SOIL PIPE—	
2 inch	Less 33 1-3%
3 inch	Less 33 1-3%
4 inch	Less 33 1-3%
5 and 6 inch	Less 33 1-3%
8 inch	net
FITTINGS	
2 to 6 inch	Less 45 per cent.

RECEDING TRADE IN BRASS AND COPPER

Toronto.

In copper and brass products there is not a great deal of business being recorded at this time of the year. The volume of activity in sheets, rods and tubing, however, is described as comparing well with current expectations. Manufactured brass goods, however, are stated to be in brisk demand. Prevailing quotations on semi-finished goods follow:

BRASS—	
Sheets base, per lb.	0 23
Rods, base, per lb.	0 22
Tubing, base, per lb.	0 30
COPPER—	
Rods, base, per lb.	0 30
Soft sheets, plain, 1 oz. and heavier, lb.	0 29
Do., plain tinned, 16 oz. and heavier, per lb.	0 36
Do., polished, and tinned, 16 oz. and heavier, lb.	0 41
Tubing,	0 33

MODERATE INTEREST IN ENAMELLED WARES

Toronto.

Interest in enameled ware products is entering upon a quieter stage, a condition which denotes the seasonal recession in building activity. Current trade, however, is stated to have kept up in unusual fair volume for this time of the year, this condition having been assisted by the heavier building program experienced during the fall months. No new developments are recorded in prices on these goods, the following being the average quotations at present in effect locally:

ENAMELED WARE—			
Enameled Iron Baths, 3" roll rim, 4 ft., 4 ft. 6 in., 5 ft.			51 40
Do., 5½ ft.			57 10
Lavatories—			
17x10" Apron F139 or P4045			15 30
18x24" Apron F154 or P3845 or P3847			23 60
18x21" Apron F169 or P4205			17 60
18x21" Roll Rim, F197, F199 or P4655-6			15 40
17x19" Roll Rim, F241 or P4345			12 60
Sinks, Roll Rim, 16x24 in.			18 10
Do., 18 x 30 in.			23 00
Do., 20 x 30 in.			24 70
Sinks, Flat Rim—	3 only	2 only	1 only
16x24	$7 60	$7 70	$7 80
18x30	8 50	8 60	8 70
20x30	9 70	9 80	9 90
Above prices, list, less 33 1-3 per cent.			
All steel enamel baths, 4 and 4½ ft.			$14.00
Do., 5 ft.			15 00
Do., 5½ ft.			16 75
Steel bath quotations are net.			

TRADE IN CLOSET OUTFITS NOW SUBSIDING

Toronto.

The approach of winter has subdued to a seasonal extent the activity formerly noted in closet outfits and fixtures. Construction work for the year is now practically completed, while repair work is also on a moderate scale. Distributors state that trade has been fairly good for this season, however, and has kept up longer in proportion to former years at this time. No changes have been made in quotations on these products, price levels remaining at the last minor revision in closet seats and combination outfits.

CLOSET COMBINATIONS—	Each
Closet, standard outfit, oak	26 00
Do., with post hinge seat	26 20
Do., mahogany Vitro or Pussyfoot with mahogany post hinge seat and cover	28 45
Do., vitreous china, with oak post hinge seat and cover	28 45
Do., vitreous china, with mahogany post hinge seat and cover	28 70
Do., white Vitro or Pussyfoot, with oak post hinge seat and cover	28 45
Do., white Vitro or Pussyfoot with mahogany post hinge, seat and cover.	28 70
Do., enamelled iron tank with oak post hinge seat and cover	28 45
Do., enamelled iron tank with mahogany post hinge seat and cover	28 70
Additions or reductions to above:	
Add for reverse trap bowl	1 50
Add for syphon jet bowl	7 00
For ⅜ in. valve on supply pipe	1 50
Deduct for supply pipe	0 60
Deduct for floor flange and bolts	0 60
CLOSET BOWLS—	
Washdown bowl with spud	10 60
Reverse trap bowl, with spud	12 10
Syphon jet bowl, with spud	17 00
"Richelieu" bowl	10 50
CLOSET TANKS, low down, Oak, Vitro or Pussyfoot tank, with fittings, less seat	13 20
White Vitro or Pussyfoot tank with fittings, flush elbow and supply	15 65
Vitreous china tank with fittings, flush elbow and supply	18 00
Enamelled iron tank with fittings, flush elbow and supply	18 00
CLOSET SEATS—	
Oak post hinge seat and cover	3 85
Oak wood strip seat and cover	3 50
Mahogany finish post hinge seat and cover	4 05
Oak Richelieu seat and cover	3 50

SEASONAL FALLING OFF IN RADIATOR TRADE

Toronto.

Brisk activity has characterized the market for radiators and boilers during the fall session, but the movement of these products is now falling off with the approach of the winter months. Business is still described as good for this time of the year, however, keen interest having been displayed in steam and hot water heating equipment, with the support of the activity experienced in construction work during the year. No change has been made in quotations on either radiators or boilers, the market maintaining a fairly steady tone, and although the volume of trade is not so pronounced as formerly, it is expected that existing price levels will remain in effect until the New Year.

RADIATORS—

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., **$1.60.**

Discount on 2, 3, 4 and 5 column standard sizes, 55 per cent for water and 56 per cent for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hosptial sizes 47 per cent for water and 48 per cent for steam.

Discounts on 1-column hospital size, water **33%**; steam **34%**.

Wall radiators—5 ft. $1.15; 6 ft. $1.10; 7 ft. $1.05; 9 ft. $1.05; 12 ft., $1.05. Discount 52 per cent.

BOILERS—

Water:

Round 60 per cent. off list. Square 20 per cent. off list.

Steam:

Round, 25 per cent off list; Square, 15 per cent. off list.

MODERATE TRADE IN LEAD AND ZINC GOODS

Toronto.

There has been some reaction in primary metals such as tin and spelter, but quotations on the finished products, such as those listed below, have shown no variation on domestic markets. Lead and zinc goods are generally maintaining the higher levels recently recorded, it being pointed out that quotations on these lines were not advanced immediately when primary metal quotations began climbing. Some fluctuations of the current nature were, therefore, more or less anticipated. The current movement of these products is described as fairly good for this time of the year, although the season's trade is moderate when compared with earlier records. Following are unchanged price levels:

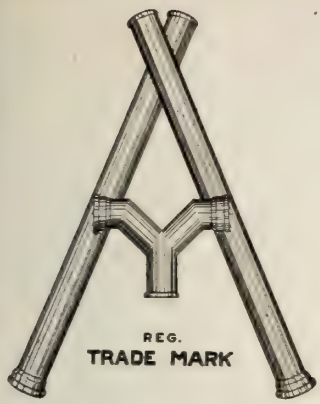
LEAD AND ZINC GOODS—		
Lead pipe, list, per lb.		0 14
Lead waste pipe, list, per lb.		0 15
Do., over 8 in., list, per lb.		0 16
Lead pipe is subject to a discount of ten per cent.		
Lead traps and bends, less 15 per cent.		
Lead sheets, 4 to 6 lbs., sq. ft. in rolls, lb. $0.09½—0.10.		
Cut sheets, ½c to ¾c lb. extra and cut sheets to size, 1c lb. extra.		
Solder wire, per lb.		0 31
Do., commercial, lb.		0 25
Do., strictly, lb.		0 23½
Do., guaranteed, lb.		0 26½
Do., wiping, lb.		0 23½
Zinc sheets, per lb.	0 11	0 12

TRADE SUBSIDES IN TROUGH AND PIPING

Toronto.

Current trading in eavestrough and conductor pipe is described as considerably quieter with the arrival of colder weather. The call for this class of material is now subsiding due to the fact that building in general has practically reached the stage of completion. There is, of course, inside finishing work still going on, but the quiet session for such

(Continued on page 46)



USE

TESTED Soil Pipe

IT COSTS NO MORE AND YOU KNOW THE JOB IS RIGHT

Manufactured by

FORWELL FOUNDRY, LTD.

KITCHENER, ONT.

Quality The Beaton and CADWELL Mfg. Co. NEW BRITAIN, CONN. *Service*

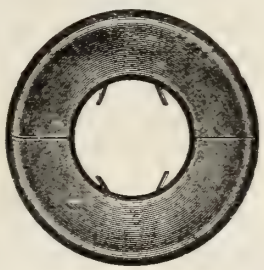
Always Necessary

GEM NO. 4 AUTOMATIC AIR VALVE.

This automatic air valve is made of the best brass obtainable and is equipped with high grade carbon. The mechanism is perfect, every valve being guaranteed by us. Ask for a catalog of Steam Specialties. We manufacture many of interest to Canadian Plumbers and Steam Fitters.

You can have as complete a finished piece of work as is possible if you insist on using reliable floor and ceiling plates. They hide all bored places in the ceiling. Are coming more in vogue all the time.

The No. 10A Narrow Flange Plate is Steel Hinged. Flanges 3-4 ins. wide. Highly finished. Especially designed for Twin Connection. "Narrow" can be attached to mains and risers at the very last.



The Beaton & Cadwell Mfg. Co.

New Britain, Conn.

EASTERN AGENTS:
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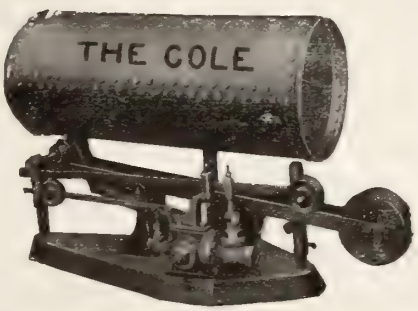
L. N. Vanstone, 8 Wellington St. E., Toronto, Canada.

WESTERN AGENTS:
A. E. Hinds & Co., Chamber of Commerce, Winnipeg.

"Cole" for Coal Economy

10% of steam used in pumps



The Cole Automatic Boiler Feeder
(Built throughout from raw materials in Canada)

Feeds Boilers Automatically.

Returns Condensation direct to Boiler hotter than a pump.

Induces Perfect Circulation.

Cuts Maintenance and Operating Costs by 15 to 30 per cent.

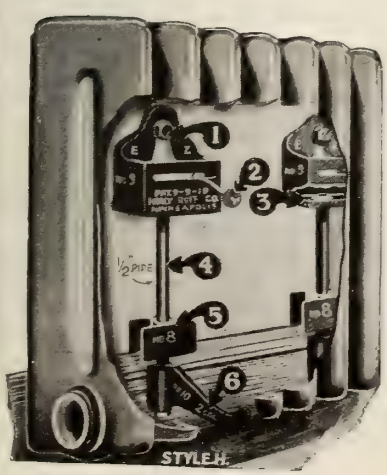
Not necessary to place the Boiler below returns.

Cannot become Airbound.

Post card will bring descriptive circulars. We have experts with years of experience who will be glad to discuss condensation problems with you.

GRANT E. COLE CO.

21 River St., TORONTO



TRY IT! The E-Z Radiator Hanger

You'll only have to try it once because it always works satisfactorily and there is a demand for more all the time.

It hangs radiators securely and is a real device to give a neat and complete finish to the interior of every home.

The E. Z. Radiator Hanger has one Bolt, Invisible Washer, Horizontal Adjustment, Vertical Adjustment, Baseboard Adjustment.
Made for Wall and Column Radiators.

IMMEDIATE SHIPMENTS FROM LARGE STOCK.

MADE IN CANADA

HEALY-RUFF CO. - MINNEAPOLIS, MINN.

J. H. Leonard, Tribune Bldg., Winnipeg.
D. G. Brison, Standard Bank Building, Vancouver.
A. Walker, 514 McLean Bldg., Calgary.
E. T. Flanigan, 229 College St., Toronto.
Eager Coombs & Co., Ltd., Halifax, Can.
Shaver Bros., Booth Bldg., Ottawa.
S. T. Hadley, 304 University St., Montreal.

"Style R."

TORONTO MARKETS

(Continued from page 44)

products as trough and piping is now commencing. Quotations remain unchanged at the following levels:

TROUGH (EAVE)—

O. G. Square Bead—

	Per 100 ft.		Per 100 ft.
8 inch	$15 90	15 inch	$28 80
10 inch	17 70	18 inch	36 80
12 inch	21 20		

O. G. Round and Half Round

8 inch	16 90	15 inch	29 80
10 inch	18 70	18 inch	37 80
12 inch	22 20		

Less 70 per cent.

PIPE (CONDUCTOR)—

Plain, round or corrugated.

	Per 100 ft. in 10 ft. lengths.
2 in., in 10 ft. lengths, list	18 40
3 in., in 10 ft. lengths, list	22 30
4 in., in 10 ft. lengths, list	29 60
5 in., in 10 ft. lengths, list	40 00
6 in., in 10 ft. lengths	49 00

Less 70 per cent.

ELBOWS (CONDUCTOR)

2 inch, list	5 25
3 inch, list	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00

Less 60 per cent.

SPELTER AND TIN FEATURE INGOT METALS

Toronto.

The current ingot metal markets continue to feature tin and spelter. Lead also retains its recent strength, but prices are steady. Copper is now described as on the way to improvement, the period of weakness drawing to a close. Tin is experiencing somewhat of a see-saw movement, there having been a natural reaction from the rapid climb.

COPPER.—Evidence in copper now points towards the elimination of the lower prices which have been a disturbing factor in this market for several weeks past. Reports from primary centres indicate that export trade has improved, and consumers are also more interested, with the result that sales have been in moderately heavier volume. The statistical position of this metal points towards a firmer market. Local quotations remain around 17¼ cents.

TIN.—The London tin market has declined sharply from the recent high levels, and this metal is somewhat duller in tone. A reaction was more or less looked for, however, owing to the sudden climb. Consuming demand is relatively quieter, although recovery is looked for. The current average price is now 41 cents.

LEAD.—The lead market is as strong as ever, and this metal is described as somewhat scarce, supplies available for December being none too large. The general position is strong, but domestic trading is quiet. Quotations locally are unchanged at $7.50.

ANTIMONY.—This market is dull and neglected. It is estimated that consumers' requirements are of a moderate nature and they already have these taken care of. Prevailing local prices continue unchanged at $8.50.

ALUMINUM.—There has been no change in this metal. In primary centres some buying for the early part of 1923 is recorded, but trading in general is on the quiet side. Quotations locally hover around 22 cents.

SPELTER.—Prices for zinc again show a disposition to fluctuate. It is pointed out that several factors are the cause of this. Buying is fairly good, by galvanizers and brass makers, while export trade has also increased. The statistical position is also receiving attention, the heavier consumption in October having further reduced stocks. There has been a sharp decline abroad, however, while domestic demand is dull. In spite of this, local prices, continue in the neighborhood of $9.50.

STANDARD FURNACE INSTALLATION CODE

(Continued from page 36)

bustible material must be covered with asbestos paper and a metal shield so fastened that a two-inch air space exists between this shield and the combustible material. This shield shall be no less in size than twice the diameter of the smoke pipe and of sufficient length to cover the wood at all points.

(c) No smoke pipe shall project through any external wall or window.

Section 10. (a) When but one duplex grating is used for both warm air and cold air in a so-called pipeless furnace, the area of the cold air intake shall be at least equal to the area of the warm air outlet of the grating. Article 4, Section 4, relating to casing shall not govern when this type of furnace is installed, but the following specification shall be followed: The inner and outer casing of this type of furnace may be made of either black or galvanized iron not lighter than Number 26 U. S. Standard Gauge. A uniform air space shall be maintained at all points between the inner and outer casing. In no case shall the top of the furnace be allowed closer than twelve (12″) inches to any ceiling or joists above the furnace.

(b) Where joists are cut to accommodate this furnace, headers shall be put in and braced so as not to weaken the structure of the floor above the furnace.

(c) Article Number 3 for determining area of warm air pipe shall not govern in figuring a pipeless furnace.

(d) Where one warm air register face is used and separate face or faces for cold air supply are used, then Article Number 4, Sections 5 and 8 shall apply.

SEIZURE OF FLUSH VALVES BY CUSTOMS

(Continued from page 17)

as to make them applicable to this field. Their product in future would continue to be marked "Sloan Valve Co., Chicago," it not being compulsory to use the phrase, "Made in U. S. A."

Further developments will be of much interest to Canadian manufacturers as the Customs official who gives the information gives it as his opinion that the Sloan Valve Co. have been making an effort to drive a Canadian competitor out of their field of manufacture at any cost and by any methods. On the other hand, the defendant company is claiming ignorance of the regulations and is taking steps to immediately amend their policies so as to conform with requirements.

Winnipeg Markets

WINNIPEG, November 29.—Price developments on the local market for plumbing and steam-fitting supplies are not numerous but most of the changes in prices are in an upward direction. Galvanized range boilers are ruling firm and an advance has been recorded. Lead pipe and waste are also higher in price. Lunkenheimer relief valves have advanced approximately 20 per cent. Business is now quiet as building activities are practically finished for this year.

LUNKENHEIMER RELIEF VALVES QUOTED HIGHER

Winnipeg.

There has been a slight advance on Lunkenheimer bronze relief valves. Following are the new quotations:

RELIEF VALVES—

½ in, $4.60; ¾ in., $4.90; 1 in., $5.50; 1¼ in., $6.60; 1½ in., $8.40; 2 in., $13.50.

GALVANIZED RANGE BOILERS MOVE UPWARD

Winnipeg.

There has been an advance in quotations on galvanized range boilers and indications are for another advance in the near future as prices have stiffened up considerably at the factory. Following are the latest quotations:

GALVANIZED RANGE BOILERS—

18 gals., $10.25; 30 gals., $10.50; 35 gals., $12.45; 40 gals., $17.05; 52 gals., $24.60; 66 gals., $35.30; 82 gals., $50.00; 100 gals., $65.00; 120 gals., $76.20.

PIPE FITTING QUOTATIONS ON STEADY BASIS

Winnipeg.

A firm tone continues in the market for pipe fittings. No change is made in quotations locally although the market is showing a very firm tone and indications point to an advance probably around the new year.

ADVANCED PRICES ON LEAD PIPE AND WASTE

Winnipeg.

Due to the firmness in the primary lead market quotations on lead pipe, waste and lead bends have shown an advance on the local market. Lead pipe is quoted at $13.41. Lead waste pipe—$14.31 and lead bends are less 10 per cent. off list price.

The Everlasting Veneer Toilet Seat

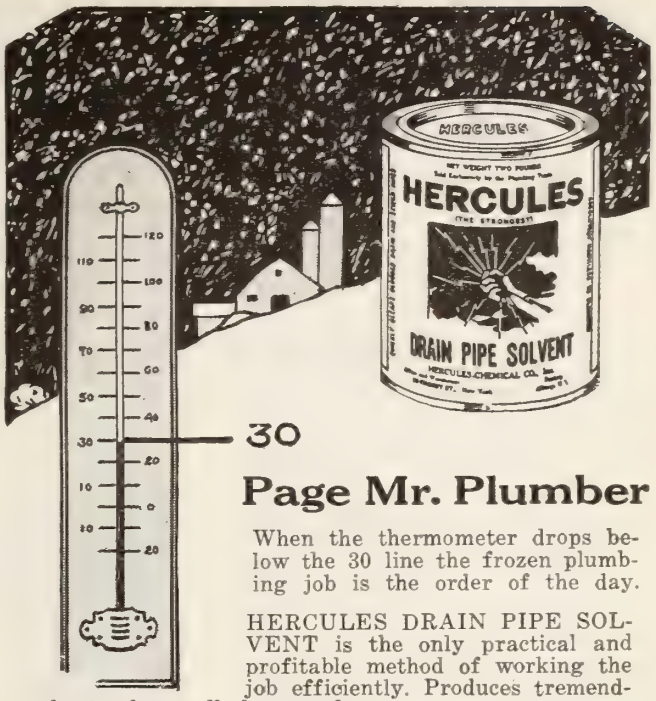
Strong, Clean Hygienic

This reliable, dependable toilet seat is made of 7 and 9-ply, air-seasoned wood veneer, held together by our special wood cement. This cement is proof against heat, cold or dampness. The veneering is distributed according to the strain and wear required of the different parts. The Everlasting Seat will never crack, warp or split.

It is a splendid seat for use in cold, damp basements where closets must be installed. The Everlasting Toilet Seat will meet, and successfully resist, these severe conditions of moisture, changing temperature, etc.

Canadian Veneering Company, Incorporated

Acton Vale Quebec



Page Mr. Plumber

When the thermometer drops below the 30 line the frozen plumbing job is the order of the day.

HERCULES DRAIN PIPE SOLVENT is the only practical and profitable method of working the job efficiently. Produces tremendous heat—*thaws all the way down.*

NO FUMES-WORKS WITH COLD WATER

Sold Only to the Plumbing Trade At Your Jobbers

Distributor:
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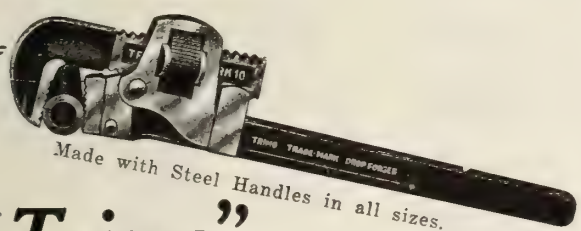
Phone, Westmount 1376.



Made with Steel Handles in all sizes.

"Trimo"

an aid to real results

If you are thinking of doing a satisfactory job without the aid of a reliable wrench stop right there!

You can't do it!

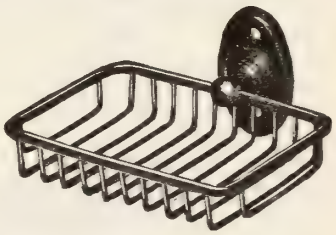
Sit down and write us about the "Trimo," the wrench with the Steel Frames, Nut Guards and Insertable Jaw that renews the handle.

Made with Wood Handles in 6", 8", 10", 14" sizes.

Trimont Manufacturing Co.
55-71 Amory Street
Roxbury (Boston) Mass., U.S.A.

Canadian Representative
Geo. P. Fraser, 28 Temple Ave., Toronto

There is Good and Profitable Business in Handling



TORONTO Gendron CANADA

Bathroom Fittings and Hardware Specialties

The merchant's margin of **profit** is good.

Wherever there is building or remodelling of homes there is a **constant demand.**

You can stake your last dollar on the **quality** of the Gendron line.

When there is constant demand, a high quality line, and a good profit, what remains to be desired?

Our catalogue "G" has the latest reduced prices.

The Gendron Mfg. Co. Limited

Duchess St., Toronto

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Canada Metal Co., Ltd., Toronto.
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BOILERS, STEAM OR HOT WATER
Gurney Foundry Co., Limited, Toronto.
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Spencer Heater Co., Ltd., Toronto, Ont.
Warden King, Ltd., Montreal.

BOILER FEED REGULATORS
Empire Mfg. Co., London and Toronto.
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BOLTS AND NUTS
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Galt Brass Co., Limited, Galt.
Kerr Engine Co., Ltd., Walkerville.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto. Hamilton.
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DRAIN PIPE SOLVENT
W. H. Cunningham & Hill, Ltd., Toronto.
Hercules Chemical Co., Inc., New York City.

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Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
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Healy-Ruff Company, Minneapolis, Minn.

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W. H. Cunningham & Hill, Ltd., Toronto.

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W. H. Cunningham & Hill, Ltd., Toronto.

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Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
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"VULCAN" CHAIN WRENCH and VISE
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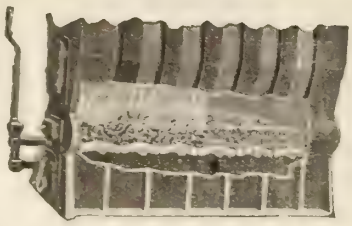

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(Boiler Department)

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Burnham Cosy Comfort Heat BB

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Is Respectfully Cautioned

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RIVETED RANGE BOILERS

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The Classified Column.

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CLASSIFIED COLUMN
WILL HELP SOLVE
YOUR PROBLEM—

SEND ALONG THAT AD TODAY

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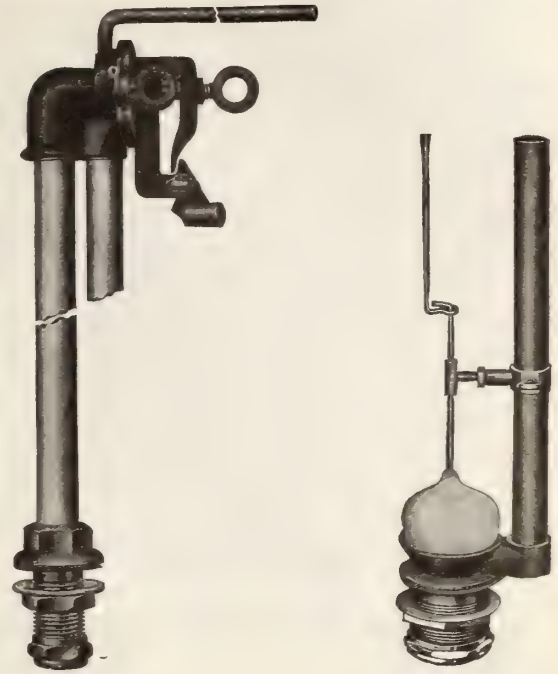
Wolverine Guaranteed Closet Tank Fittings



Dale Ball Cocks—quiet, simple, reliable.

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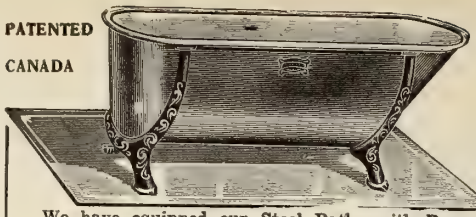

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TWEED ENAMELLED STEEL BATHS

They now look like the expensive cast enamel baths but are the same price as before.
Our new patent Roll Rim Enamelled Steel Baths are now ready for shipment.—Order samples.

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Gather up your broken tools to-day, send them to us and we will quickly put them in shape for you.

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Otis Heaters utilize the exhaust steam for heating water instead of letting it go to waste, the saving will surprise your customers.

Otis Heaters insure hot water quickly and maintain it at an even temperature regardless of the quantity drawn.

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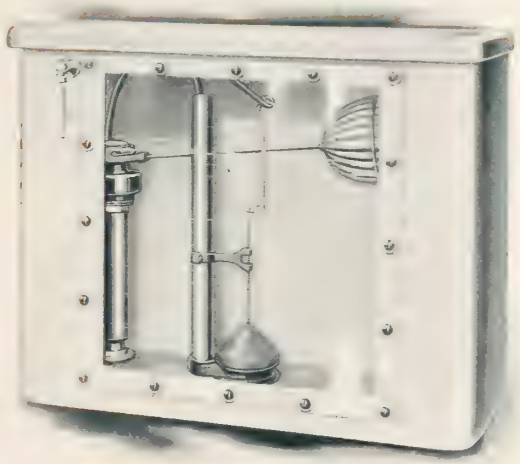
The Sales of—

"PUSSYFOOT"

CLOSET TANKS

are breaking all records.

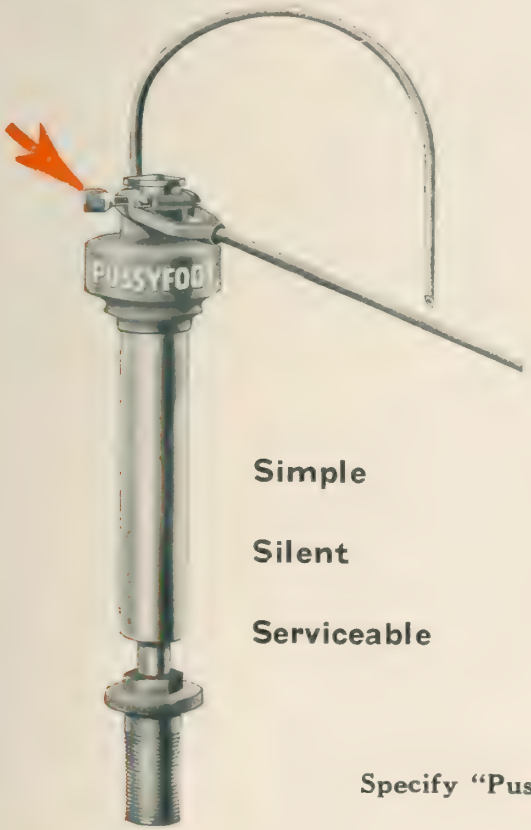
The reason is that the more they are seen and known, the more their value is appreciated.



OUR DEMONSTRATING TANK

with glass front, enables the simple mechanical arrangement to be seen in operation, showing

"Only one bolt"



Simple

Silent

Serviceable

Our New Valve

with large Silence Chamber and only one bolt necessary to make any adjustment.

The silence and rapidity of its action is a revelation, and in addition there is no unnecessary part to get out of order.

Suitable
Alike
for
Castle or Cottage

Specify "Pussyfoot" to your Jobber and insist on having it.

THE CANADA METAL COMPANY

LIMITED

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Permanence

"As good as new for a generation"

This gracefully molded, smooth, white New Design Vitro will keep its gleaming beauty unstained and untarnished through long years of service.

That people to-day are thinking more about quality and less and less about the cheaper price of inferior goods is proved by the fact that more Vitros are being sold to-day than any other tank on the market.

Your Jobber sells them.

Galt Brass Company, Limited

GALT ONTARIO

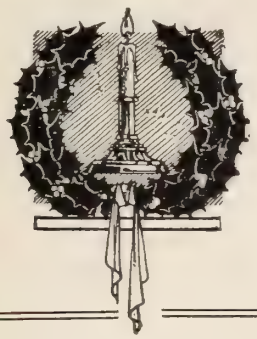
VITRO
NO TROUBLE
TANK

Sanitary Engineer

Plumber and Steamfitter of Canada

Vol. XVI. PUBLICATION OFFICE, TORONTO, DECEMBER 15, 1922 No. 24

EMPIRE



To all our friends within the boundaries of the Dominion we extend Hearty Greetings for a Happy Christmas and a Prosperous New Year.

Empire Brass Manufacturing Co., Limited

LONDON and TORONTO, CANADA

Christmas Greetings

To the Sanitary Engineers of Canada

To the men who recommend and sell our products—who have in the past so loyally supported us we extend cordial thanks and warm Christmas Greetings.

To them and to those whom we will be permitted to serve in the future we proffer the hope that the New Year will bring a great measure of prosperity.

In 1923 we will be, better than ever, prepared to supply you with the very best in Sanitary fixtures.

The Wallaceburg Brass & Iron Mfg. Co. Limited

Wallaceburg - Ontario

A Merry Christmas

We welcome this opportunity which permits us to offer warm greetings to our friends in the plumbing trade across Canada.

We look forward with confidence to the coming year; we believe that with faith and work this plumbing trade will march forward to newer and broader prosperity.

That each of you individually may have health and luck and good fortune is our cordial wish.

ANTHES FOUNDRY LIMITED

Toronto and Winnipeg

Manufacturers of Cast Iron Soil Pipe and Fittings.

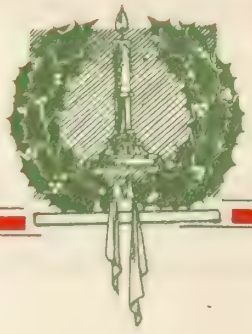
ANTHES

A Hearty Christmas Greeting

We extend a Hearty Christmas Greeting to our many friends and customers. We hope that 1923 will bring progress and prosperity to those clients whom it is our privilege to serve and to those also whom in the future we will be permitted to serve.

With thanks for the loyalty and faith of our friends we wish them a Happy Christmas and a New Year full of progress and prosperity.

K. B. Allison
4 Irwin Avenue
Toronto Ontario



A Word of Greeting and Appreciation

TO ALL of you—subscribers, advertisers, contributors; whose interest, patronage and co-operation has helped largely in bringing this journal to its present day success—Greeting.

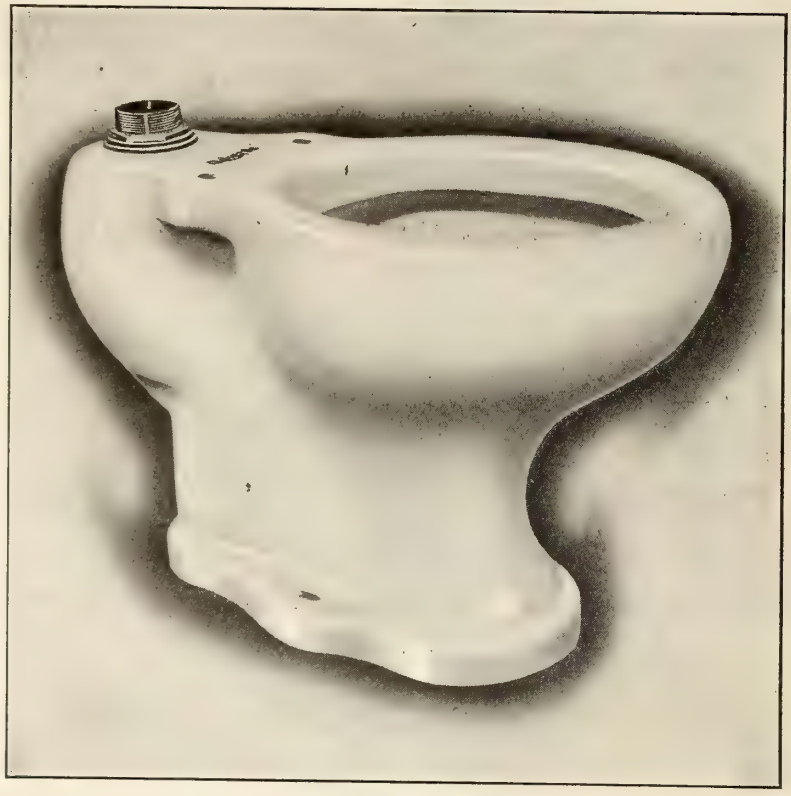
We thank you for your courtesies—the many obligations you have laid us under in the year now closing; and we ask your further favors in 1923. On our part we shall strive in every way to make Sanitary Engineer always worthy of your confidence.

We wish every one of you the Merriest Christmas ever and a New Year that will bring you health, luck and prosperity in unstinted measure.

Wm. Kingsland

Advertising Manager,
Sanitary Engineer.

Include Refinement in your Service by Selling the QUIETUS



OUR NO. 20 "Quietus" Syphon Jet closet as its name implies is of the so-called "silent" type. It operates so quietly that its action when flushed cannot be heard outside of its immediate environment; yet it possesses the same unhesitating strong action for which all Canadian Vitreous closets are noted.

IT IS modelled on simple dignified lines; it is vitreous through and through and its lustrous shimmering white-glazed surface coupled with its special attribute of real quietness of operation commends it to the discriminating buyer who would include the utmost of refinement in his choice of toilet-room equipment.

CANADIAN POTTERIES
LIMITED
SAINT JOHNS
QUEBEC

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These Premises are Protected from Theft to this Extent

$50.00
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will be paid by the Toronto Hardware Mfg. Co., Limited for the arrest and conviction of any person or persons who may hereafter rob or attempt to rob the premises of a dealer in plumbing supplies, **who carries in his stock at the time of such depredation the range boilers manufactured by**

The TORONTO HARDWARE Mfg. Co., Limited

Have You Received Your Copy of this Poster Yet? If You Haven't a Post Card will Bring You One

The Ancien
Weren'

Greeks Keen on Baths

You can't blame them much, however, when you consider that they had to stand alongside a glorified horse-trough and splash water on themselves.

It is true that at Melos was found the remains of a women's bath where water evidently spouted down from animals' heads upon the bathers below, but this would appear to be an unusual building, no other such bathing-place having been discovered.

Greek men regarded frequent bathing as effeminate and contented themselves, mostly, with rubbing themselves with oil.

Well!—look what has happened to Greece.

Perhaps if the Greeks could have had **"Standard"** bathroom fixtures they would have washed more often.

"Standard" owners delight to use their really beautiful bathrooms—they are proud of them.

Our persistent, worthwhile advertising first sold these people on the Quality of **"Standard"** ware; further persistent advertising—plus the excellence of the product—keeps them sold.

Everywhere there are people just about ready to buy—the dealer who keeps an attractive display in his window at all times will get his full share of this business.

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Limited

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Calgary: 354 11th Avenue West
Hamilton Store: 26-28 Jackson Street West
Vancouver: 860 Cambie Street

"MADE IN CANADA"

We wish a goodly of Chris and happiness

We thank you for the many pleasant contacts we have had during 1922—for your patronage and support. We believe that the coming year will bring to all of us

Warden

Mon

Branch Office: 13

you---our friends---

share

mas joy

an increased measure of prosperity.

It shall be, in these months to come, as in the past, our aim and ambition to serve you well.

King, Limited

treal, Que.

Simcoe St., Toronto

Let us wish you a full share of Health and Prosperity

That you may have a Merry Christmas and a Happy New Year crammed full of good health, good luck and prosperity is our cordial hope to-day.

We thank our patrons the country over for their support in 1922 *and we assure them that we shall endeavor to merit its continuance in* 1923

The Vulcan Co., Limited

Manufacturers of Warm Air Furnaces

London - - Canada

SANITARY ENGINEER
PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907 PUBLISHED TWICE MONTHLY

Vol. XVI. PUBLICATION OFFICE: TORONTO, DECEMBER 15, 1922 No.24

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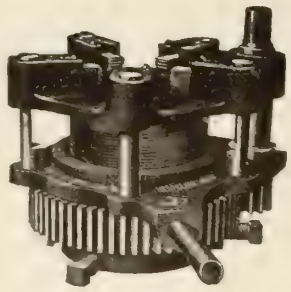

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This tool threads pipe with less labor than others. It is so simple in construction that it is easier to do work right than to do it wrong. It is compact, light in weight, strong and durable, accurate and speedy. It costs no more than imitations and in one month's production it will more than pay for itself.

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Established 1907

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Plumber and Steamfitter of Canada

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Receipt Tax Likely to be Deferred

Finance Department Experts Who Have Been Studying English Law Will Not be Back Until Few Days Before Beginning of New Year When New Receipt Tax is Scheduled to be Effective—Gives Trade Opportunity to Launch Big Protest

By Ottawa representative Sanitary Engineer

WHEN THE federal government announced its intention several months ago of providing a new source of revenue by the introduction of a tax on receipts, there immediately went up a howl of protest from many sources throughout the country and the statement was made by representative officials that no stone would be left unturned in an effort to have the measure expunged from the statutes. Since then a great many stones, big and little, have been turned and it now begins to look as though the battle had not been fought in vain.

Developments of the last few days are sufficient justification for the foregoing assertion. In the first place, Premier King and his Cabinet associates have been literally swamped by a deluge of telegrams vigorously protesting against the imposition of the tax. These have come from every part of Canada and are worded in the strongest possible terms. They have come in response to circulars which were sent out some time ago calling on various business associations and thousands of individual business men to act in concert in placing on record their opposition to the measure. It is estimated that the number of messages reaching the premier might total nearly one hundred thousand. However, more conservative estimates place the number somewhat below that mark. It was expected that fully 30,000 telegrams would be received from Toronto alone.

Sample of Protests

As an indication of the trend of the thousands of messages which poured into the Prime Minister's office, we quote the following from the William Thompson Co. Ltd., of Belleville, Ont.:

> "If the Act regarding stamps on receipts is put into force it will have a demoralizing effect on credit business."

The secretary of the Annapolis Royal, N. B., branch of the Retail Merchants' Association wired:

> "We protest strongly against the enactment of the Act providing for a tax on receipts. It brings heavy responsibilities upon individuals that carry on without, and cannot afford office help."

Likely To Be Deferred

The general impression conveyed by the messages was that the business world of Canada was decidedly opposed to the measure, and was prepared to go the limit in preventing its enforcement.

The tax is slated to become effective on January 1st. But it is now intimated that the government is considering the advisability of deferring the bringing into operation of the measure for a month, or possibly longer. Some official announcement in this regard may be expected within a few days. The reason for this possible delay is that the officials of the Department of Finance who went overseas with the Minister, Hon. W. S. Fielding, and who are understood to have made investigations of the British regulations governing the receipt tax, are not likely to arrive in Canada until a few days before the beginning of the new year. As it is expected the Canadian regulations will be somewhat along the same lines as those in operation in England, the officials at Ottawa will likely require some little time to draft them.

The effect of this delay while, of course, being farthest from the minds of the officials, will be to give the trade an opportunity to launch a still more strenuous attack against the measure while the members are assembled in Ottawa in the early stages of the forthcoming session of Parliament.

Little Prospect of Total Suspension

What effect this flood of protests will have upon the government is problematic. It was stated that these telegrams were a sort of artillery preparation for personal representations which would be made to the Prime Minister in a week or so. All those interested declare they are determined to get some action.

Parliament Alone Has Authority

There is little or no prospect that the operation of this receipt tax law will be entirely suspended—at least, if parliament decides that it should be—before May 1 next. Its operation cannot be suspended by an order-in-council, as it is an act of Parliament, which can only be negatived by another act, unless the former specifically provides for governmental suspension, and in the present case it does not.

It is proposed to lay before the Prime Minister an alternative which, it is promised, would be "just as good." In government circles it is believed that this substitute is some form of a "turnover tax"—a tax on the day's or the month's business. On the other hand, government officials point out that the receipt tax has been in operation in Great Britain for some time, and has worked smoothly and profitably.

Do You Favor Amended Sales Tax?

Two Suggestions for Revision of Sales Tax Act in Forthcoming Budget—Amendment as Suggested Would Remove Many Irregularities in Present Administration of the Act, According to Its Sponsors—Send Your Opinion to the Editor

TWO SUGGESTIONS have been offered as solutions of the present situation in regard to federal taxation. The first one is that the tax be collected at the source early, namely, from manufacturers or against imports. The second suggestion is that the present Act be continued but be altered according to the amendment which is outlined herewith. Under the prevailing practice some manufacturers in absorbing part of the tax are violating the principle of the Act. In the face of a possible higher sales tax there are some definite indications that many manufacturers will cease this practice. Should this be done it will place other wholesalers in a very embarrassing position.

There seems to be some considerable confliction regarding the first proposal and should it be found impossible for retailers, wholesalers and manufacturers to get together on that suggestion would you favor the proposed amendment? We would be glad to have your reasons either for or against this proposal.

Government Favors Wholesalers Under Present Sales Tax

Interviews with several prominent manufacturers make it clear that there is a very strong feeling that the government in all fairness to the manufacturing industry of Canada must amend the present sales tax in order to end the very unsatisfactory conditions which prevail, and due to the following facts:

If the Act is lived up to by manufacturers and wholesalers, the retailer saves 2¼% by purchasing through the wholesaler, who holds government license, instead of buying direct from the manufacturer, and as the manufacturer has to allow the wholesaler 15 to 20% to act as distributor it means that if the retailer, in order to save this 2¼%, stops buying direct from the manufacturer and buys from the wholesaler, the profit of the manufacturer being reduced to that extent is obliged to advance his selling price 15 to 20% to protect himself. The result is that the government is placed in the position of arbitrarily forcing upward the cost of living by diverting the channel of trade direct from manufacturers to retailers through the wholesalers.

However, the manufacturers, while realizing the value of the wholesaler, also realized the danger of this situation and took prompt steps to temporarily correct the flaw that exists in the sales tax as at present applied, by absorbing 2¼% of the total 4½% tax that they are supposed to collect from the retailer, thus placing themselves on an equal basis with the wholesaler. But as this was equal to a 2¼% reduction in profit, it became necessary to immediately increase selling prices. This fact accounts in part for the rising prices on many products during the past year.

Pressure From Wholesalers

But with this part of their problem temporarily taken care of they were immediately faced with strong pressure from the wholesalers holding government licenses, who, if the Sales Tax Act is applied correctly, have to pay the manufacturer 2¼% tax and which he cannot pass on to the retailer.

In other words, on products that he is allowed 10% commission to sell, he in reality only makes 7¾%, as he has to pay the manufacturer 2¼% tax which he cannot recover. The manufacturers, in many cases, have come to the rescue of the wholesaler and are making a special allowance equal to the 2¼% sales tax thus defeating the intent and purpose of the Act, but saving the business world from endless confusion and, in many cases, bankruptcy and failures.

The manufacturers hope that the Honorable Mr. Jacques Bureau and his deputy, Mr. Taylor, will favorably consider their suggestion that the present Sales Tax Act be amended as outlined.

It is claimed that this amendment will have the effect of bringing order and harmony into the business world and will enable the government Act to function properly and without the necessity of either manufacturer or wholesaler resorting to various, and in many cases, dubious means to protect themselves against the harmfulness of the Act as it at present is supposed to operate.

Business, it is said, will be conducted on a more economical and orderly basis and the government will lose nothing financially by the change.

The Editor, Sanitary Engineer, 143 University Ave., Toronto, will welcome your opinion on this suggested amendment, giving your views in support of your decision.

PROPOSED AMENDMENT TO PRESENT ACT

1st—That the present Act be amended so that sales by manufacturers to wholesalers holding wholesale tax license for re-sale by the latter, also wholesalers to other wholesalers holding wholesale tax license for re-sale, be exempt from sales tax.

2nd—That wholesalers holding Government Tax License collect 4½% Government Tax from retailers or consumers.

3rd—That manufacturers continue to collect 4½% Government Tax from retailers and consumers.

4th—That the collection of 4½% Government Tax by wholesalers and manufacturers be compulsory and with no option of absorbing a part or all.

CO-OPERATIVE PLAN TO LOWER COST OF BUILDING

Windsor, Ont.—Concerted action to bring down the prevailing prices of building supplies, which it is claimed are exorbitant, is to be started by the Builders' and Contractors' Association of Essex County. Already thousands of dollars are said to have been pledged verbally by the members to smash the combines operating building supply concerns. This announcement was made by H. E. Turner, secretary of the association.

Negotiations are now practically completed for the operation of a co-operative supply yard to be located in Windsor near a point where transportation facilities are favorable and will be the first drastic step taken by the association to lower the prices of building materials.

"This is not being done to antagonize dealers' supplies, but simply to cut down the cost of materials, which at present are exorbitant," said Mr. Turner.

The co-operative supply yard will include every piece of material used in construction work. "If necessary we will buy even nails," said one member of the association. Sand, gravel, cement, plumbing and all other supplies will be carried.

ACTIVE BUILDING IN ST. JOHN

St. John, N. B.—Building permits issued during November covered construction valued at $47,000, as compared with $26,000 for the same month last year. For the eleven months to date this year, the total was $697,000, and for the same period in 1921, $566,000. Twenty-nine repair permits were issued during the month of November.

Says Gas Appliances Should Have Flues

Coroner's Jury at Toronto Inquest Recommends That Section 238 of Proposed Regulations be Enforced

EXPERT opinion, emphatically expressed at an inquest in Toronto, condemned all forms of gas-burning appliances as dangerous, unless such appliances are equipped with flues connected with warmed chimneys, to carry off gas fumes.

The verdict of the jury was to the effect that a girl had died from the effects of inhaling carbon monoxide due to the burning of a gas heater which had no flue, and recommended that Section 238 of the proposed regulations passed by the Provincial Board of Health on May 6, 1918, be approved and enforced by the Lieutenant-Governor-in-Council.

H. Norris, Inspector for the Department of Public Health for the city, declared that all gas appliances should be provided with flues as a plain matter of safety. At present the department was powerless to order the attachment of a flue unless the lack of one created a nuisance. If he smelled gas he considered it a nuisance, and ordered a flue to be attached. Wherever he found a gas stove or heater, he said, he generally found a smell of gas. "I would insist upon flues for all gas stoves and heaters," he said, "even those little ones that can be moved from room to room." In reply to the Coroner he said he considered the present system of installing gas stoves and heaters "positively dangerous."

J. E. Skirrow, General Inspector for the Consumers' Gas Company, stated that his company, as a matter of public safety, would install no kind of stove or heater without a flue. This was by no means the first death from gas fumes that had come to his notice recently, he said.

Harold Hodgson, who installed the heater which caused the death of the girl, stated that, in nine cases out of ten, heaters were installed without flues. He purchased heaters from the jobbers, without flue equipment. If flues were asked for they were attached, but not otherwise. He believed it would be safer if heaters were equipped with flues.

Charles Lightfoot, Testing Inspector for the Gurney Foundry Company, explained that, although all heaters were provided with an aperture for a flue-pipe, such pipes were never sent out when a stove was sold. The heater in question was manufactured by his company; he had examined it since the death of the girl, and had found a leak, due, he thought, to the heater having been pushed out of place and a connection dislodged. When he installed a heater himself he always recommended a flue, and thought that this should be made compulsory.

Mr. McFadden drew attention to the fact that the Provincial Board of Health by virtue of authority conferred upon it under the Revised Statutes Chap. 218, Sec. 8, ss. (dd), and through the amendment of Schedule "B," Public Health Act, has passed a proposed regulation in May 6, 1918, in which Section 238 read in part: "Said heater shall be provided with a flue pipe and approved cowl, or other approved ventilating device to carry off noxious fumes to the outer air ....."

Plumbing Specialties Make Christmas Display

That plumbing specialty lines can be made attractive in a display for encouraging Christmas business is evident from this arrangement by Ecclestone & Bates, Ltd., Bracebridge, Ont. It contains shower baths, towel racks, bath seats, shelves, mirrors, closet seats, and other such lines. The use of streamers, and holly helps the idea of the display. This firm has proved that much profitable business can be done in these lines by going after it in the right way at Christmas.

Further Sidelites on Plumbing Installments

(With apologies to Ring W. Lardner)

By

MAJOR L. L. ANTHES.

MANAGING DIRECTOR-ANTHES FOUNDRY LTD.

Terraboone, Dec. 13

Dear Friend Al—

WILE I infurred in my previous epistol that I had set up into the plumbing bizness, I dident tell the hole tail by no means. It was only wat mite be called the prolog an this will be the 2nd installatn. Much water has floed under the mill since I struck this burg an signed up for a life job.

I tolled you of my plans for a swell showroom an as how Bill Stye the foreman was acksessory after the fact in the idear. Well we got our showroom and it is a lallapaloozer. Our fxtrs. and etc. is the best as can be percured and the bridle soot of the Plazzer Hotel aint got nothin on it. Poor old Stew had an idear as swell fxtrs. was idol capitol. Let me tell you rite hear them there fxtrs. has gone out of the showroom about steen times—sold rite off the flore. When it comes to sellin Henry Ford aint got nothin on me—and when I get a pertiklery hard nut to crack (and the woods is full of em up hear) I cut loose like William Jennings Bryan at a Chataquaw. You know me Al.

"Aint you got something a little less xpensif?" is a question that they pulls reglar.

"Oh of coarse," sez I, "but I thot as how you wd. only stand for the best or ide of shone you the cheaper fxtrs. 1st etc. etc. etc.—you no that lion of bull Al. It usly gets em. I trots em out behind and shows em the ordinary stuff, but as a rool that swell showroom out in front draws em back just like a maggot draws a needle. Haven seen the best 1st they hates the idear of passin it up even if it does hit the pocket a little harder. And believe you me Al sum of thees hear guys has got wot Sam Hellman calls "one-way jackets lioned with fishooks."

And Oh Ive seen sum lovely jobs in this hear metroplis—I guess they musta bin instald. by them their Crusaders wot was always tryin to trim the Jews. My showroom sure made some of these big ginks with the Noahs Ark bathroom trimmins loose sleep at nite. My wreckin gang is kept bizzy overtime tearin out horse stall fxtrs. out of the best homes so as the owners can keep up with the Joneses. Up-to-date plumbing has got to be a reel epydemic in this hear town.

And rite hear I want you to understand that I dont take all the cr. for the weigh things is movin. Bill Stye the foreman and my urstwhile partner is entitled to a hole Florists Exhbt. wen it comes to boquets. He jest eats up thees big jobs and their aint no come back ether. And the folks wat we done the jobs for is just as tickled as baby's 1st tooth. Furthramore Bill Stye is a regular bludhound when it comes to findin out new jobs. Youd think he was a licker spotter the way he follers up lumber and trick waggons. It dident take him long to learn me that trick. "You gotta be a good mixer," he sez, "and not afrade to ast questions." As you know I always was a good mxr.—peepul is always reddy to stop and talk baseball—as fer askin questns., well you no me Al.

So wen bizness aint rushin I stands around outside talkin to the boys, but my ize is lookin up and down the street all the time.

"Hello Sam," I sez wen the driver for the Consolidated Lumber Co. passes by, "Ware away?"

"Oh to so-an-so," he sez, an I makes a mential note of it rite their and follers up the clew later on. I passes along a cigar to them drivers and they drops around to the shop after hours to talk baseball and etc. My motter is "A loose tongue covers much territtory," an my earze is always open.

Theirs 1 thing as bothers me—two menny of theze younge bluds pays 2 much attn. to Vilet. Not that she takes much notis but I dont like it. They dont do nothin that entitles them to a call

down—but somehow I wish they wd. keep theyre lamps off of Vilet. Of coarse I cant say nothin to her she always attends to her nitten and wont stand for no freshness from nobody. Betwn. you an me Ime jest a little skeered of Vilet. Not that shees ever done nothin to skeer me, but shees inclined to be a little standoffish if you no wat I mean. Sometimes I cant understand her. Frinstance she wont let me write to nobody but she must 1st tipewrite the letter. "It looks more bizness like" she sez with a laff.

Of coarse as far as youre concerned Al she sez thats a personal matter an she wont come between friends with a tipewriter. That shows her hart is rite. Do you no somehow she found out wen my birthday was and bot me a nice, lether covered dictionary.

"Wy did you do that?" I sez to her embarrased like.

"Oh," she sez, "its so long to Xmas." I leaves it to you Al wat she ment—its got me guessin.

One day wen she was mad and I had writ a long epistol to a big jobbin firm fur substitoon goods other than was specifide she up and asts me "Were jew get that fonetick stuff?"

"Fonetick stuff?" I sez "Wot jew meen?" I thot praps she was tryin to pull off some new raideo gag on me.

"Wots the English languidge ever done to you that you shd. treet it that way?"

I begin to suspish that she was referrin to my spellin but she was two plite to say so rite out. Thats just like Vilet. But bleeve me old timer if she xpects. me to learn that dictionary off by hart afore Xmas shees got another think comin. Wy I aint bin abel to memorize the 1st colmn. of wurds beginnin with "A" yet. But its put me wize to 1 thing alreddy and that is theirs a lot of difference in spellin. It looks as if Ide got to start the dictionary way of spellin if I want to make a hit with Vilet. An I feel I ought to try to pleeze her wen her intentions are so good—dont you Al?

Two many of these young bluds pays 2 much att'n. to Vilet.

Well old Cock I guess "snuff sed" fer jest now. Bill Stye hez got somethin on his mind the which I will turn loose on you in my nxt. It hez to do with rurail instalments and sceptic tanx which in baseball parliance is plumbing in the Bush League.

Au resevoir till later.

Laying Out Sewage Disposal System for Rural School

THE first of a new series of articles describing actual installations of plumbing and heating equipment will appear in the January 1 issue of Sanitary Engineer.

This will be prepared by Edwin Newsome and deal in detail with the installation in the Mount Dennis school. The septic tank proper will partially treat 4000 gallons of sewage per day and nearly 8000 lineal feet of four inch field tile pipe will be laid.

This is a most interesting installation and an article of practical value for reference in future. Keep the series.

Problems of This Year's Inventory

Trend of Price Fluctuations This Year Raises Some New Problems in Pricing the Stock on Hand—What the Inventory Should Include—Pricing at Cost or Market Whichever is Lowest

Written for Sanitary Engineer by C. W. HAFNER, Manager G. W. Hafner, Inc., Auditors

AN inventory is a part of a statement of the financial position and operating condition of a business upon a certain day. And yet anyone at all familiar with actual conditions will agree that the inventory is usually the most dubious figure in the financial statement or balance sheet. It may look very precise, but it commonly covers a multitude of sins. The entire process is often full of guessing and juggling; and, to cap it all off, a thoroughly unsound scheme of valuation may be employed.

What an Inventory Should Include

The influence of the closing inventory figures upon the showing of net income and financial position is so great as to demand the most searching scrutiny of inventory practices, and the insistence upon the use of principles and procedures which are as rational and accurate as possible. Especially in these days of heavy income and profits taxes has the inventory process—both taking and pricing—become a matter of utmost significance to all business men.

Hence our endeavor should be to ascertain, not alone how to take the inventory so as to eliminate mistakes, but also the best manner in which to price the inventory after it is taken. What we should be interested in is getting at the facts, whatever they may be. We want to know what the goods on hand on a certain day are worth as an asset of the business.

The merchant or manufacturer must not forget that, where the title to the goods is vested in him or in his concern, the following classes of merchandise should be taken into account in the inventory: consigned goods, in the hands of customers; goods in public warehouses, subject to order; goods in transit and the like.

Pricing at Cost

A choice of two distinct methods of valuing the inventory is offered: "Inventories should be valued at (a) cost, or (b) cost or market, whichever is lower." However, the use is permitted under abnormal conditions, of the selling price, if actual selling prices were lower than cost or market.

When used as a basis for pricing inventories, the word "cost" in the first method means the actual invoice price paid for the merchandise plus freight, hauling and handling. At the option of the taxpayer, cash discounts, may or may not be deducted, but the method adopted by the taxpayer in this respect must be followed consistently thereafter.

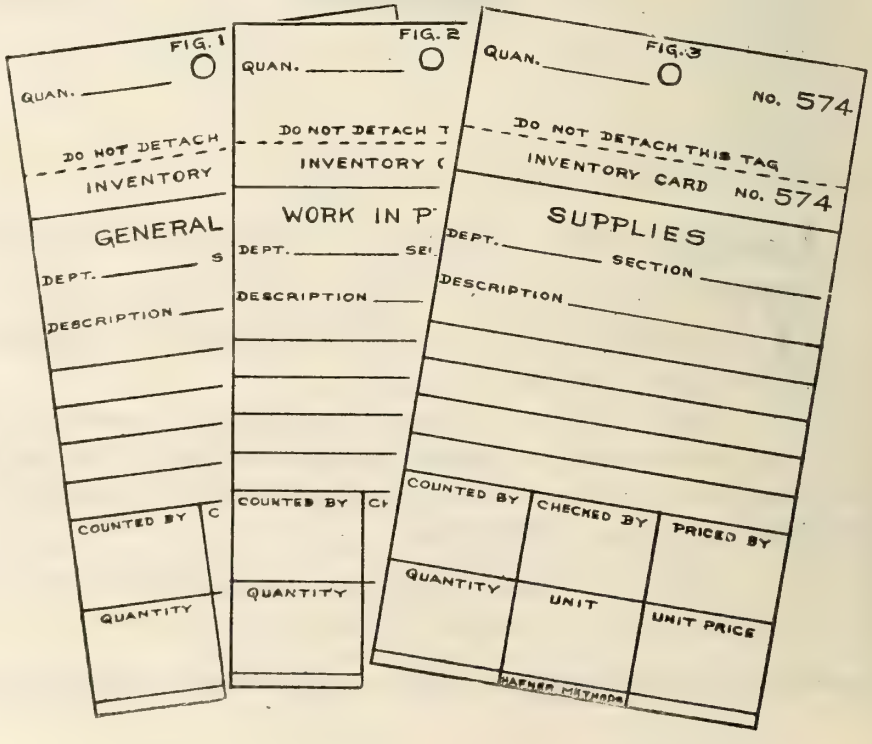
Now, the question immediately arises, how are cost prices to be determined? A plan widely adopted by business men is of assuming that goods utilized or sold are always taken from the oldest lot first; or in other words that the stock actually inventoried consists of the most recently acquired lots. In carrying out this plan it is necessary merely to arrange invoices in a chronological sequence; and beginning from the latest, take off both quantity and value figures until a quantity total has been obtained equivalent to the quantity shown on the physical inventory. Thus, the corresponding value total would be the value of the inventory. By this means the inventory value is drawn from the actual records in a simple and systematic way, all guesswork and uncertainty being eliminated.

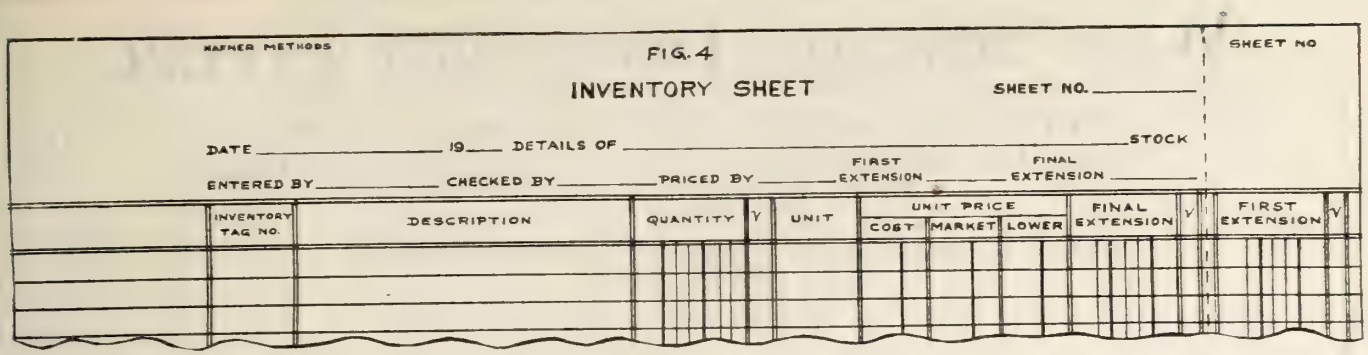
Pricing at Cost or Market

Where the second method—"Cost or market, whichever is the lower"—is used; it becomes necessary to set up three price columns on the inventory records, designated as "Cost," "Market," and "Lower," as illustrated by Fig. 4. The cost per item or unit should be entered in the first column. the market price in the second column; and the lower of the two preceding figures, in the third column. The number of units of each item appearing on the inventory sheets are then extended at the values showing in the third column.

Market is defined as the current bid price prevailing at the date of the inventory for the particular merchandise. In establishing a "bid" price it is necessary to show actual tradings in the particular merchandise, goods or materials at the prices used. But it is not necessary for the individual taxpayer, himself, to have made the transactions used to establish the market price; the known transactions of others are acceptable evidence of the validity of such a price. Getting at the market price is sometimes difficult, but there is no mystery about getting such values in the same form as it is bought.

The material part of any manufactured product, such as in the case of tinsmiths, would also be priced at market, plus labor and overhead. In labor and overhead the use of "market" also applies. These are usually measured of course by the actual payments for labor during the period, and by actual over-





head for the period, or by an average rate or a standard rate of overhead. Thus the labor represented in the goods being inventoried may have been at a higher rate than that obtaining at the close of the year. The actual burden rates at the end of the year may, likewise, be lower than the rates applied when the products were manufactured. In such cases the lower rates in effect may be substituted.

In the Nature of a Photograph

This whole matter of pricing the inventory will be simplified and clarified, if it is borne in mind that the inventory is in the nature of a photograph, a snapshot, of the value of the stock on a particular day. It is not an impressionable painting that brushes into the values either the hopes or the fears of the future. Neither is it a forecast of what the business will be in a week, a month, or six months hence.

It is advisable, then, from every conceivable standpoint that inventories be valued by the second method; i.e., "cost or market, whichever is lower." As an indication of financial condition on a specific date, actual cost is not, in the very nature of the case, a satisfactory valuation. Price changes between purchase and inventory dates, are quite likely to be so striking as to render "cost" an extremely dubious representation of the true economic position of the concern. Especially during a phase of depression, with the trend of prices constantly downward, such as that we are now experiencing, it would put a valuation upon the inventory entirely too high.

Taking the Inventory

The taking of a true physical inventory involves some considerable preparation. This matter of preparation is a governing factor in securing accurate quantities. If you want an exact inventory you must begin some time in advance. A definite plan of procedure must be laid out, definite instructions sent to all officials and employees, and everyone must familiarize himself with the instructions. For the guidance of business men in this respect, the following general instructions are presented:

The following instructions outline the means of taking a physical inventory of stock at the close of business, December 31st, 1922. In order to obtain dependable information, these instructions must be understood by the executives of the company, as well as by ALL the individuals who will handle the detail work of counting, checking, pricing, recording and extending the inventory.

The manager will assume the entire direction and responsibility for properly carrying out instructions and taking inventory. He will determine that all persons in any way connected with the work understand the instructions, and are thoroughly familiar with just what will be required of them.

The department manager, or individual in charge, in each department will be held responsible for the count of all merchandise which is within the boundary of his department at the time of taking inventory.

Each department manager will assign certain individuals in his department, who are competent, to the various sections to make the count of all stock within such section. Since the department manager will be held responsible for the accuracy of this work, he should use care in choosing the men who write legibly, know the stock thoroughly and are careful and accurate.

The Working Arrangement

The men shall work in gangs of two, one counting the stock, and the other writing up the description and other necessary information on the tags to the proper lot of merchandise. The tags marked "general stock" (figure 1) shall be used for listing all stocks of merchandise; the tag marked "goods in process" (figure 2) for all products in course of manufacture; and the tag marked "supplies" (figure 3) for sundry items of supplies on hand.

Every tag will be numbered, and all of them must be accounted for. In case an error is made in writing a tag, under no circumstances must it be destroyed. It shall be marked void, and given to the department manager.

As soon as an entire department or section has been completed, the department manager will notify the inspection committee, who will make a sufficient examination to determine that all stock has been tagged, that the description on each tag is correct, that the proper unit appears on the tag, and that the quantities appearing on the tags are correct.

As this is done, the inspectors will tear off the bottom portion of the tag, place their initials in the space marked "checked by," and turn the tags over to the department manager. The department manager will see that all tags received by him are accounted for, and will then turn them over to the office, for checking with the issue records. The stubs must remain with the merchandise and no stock shall be removed until all tags are accounted for.

Pricing Clerks' Work on Tags

When the tags are received in the office, and are checked with the issue records, they will be turned over to the pricing clerks, who will price the tags under the direction of the manager.

When all the tags are accounted for and priced, they shall be assorted, first by the following classifications, and then by particular items.

1—General Stock.
2—Goods in process.
3—Supplies.

Having been thus assorted, they shall be listed on inventory sheets (figure 4) and the first extension made on the stub of these sheets.

After this extension has been made, all sheets will be numbered, the stub to bear the same number as the sheet. The stub will then be torn off and the final extensions made in the column provided on the sheet proper. By comparing the total of each sheet with the total of its respective stub a proof of the clerical accuracy of extensions and footings will be obtained.

ADVISES AMALGAMATION OF PUMPING PLANTS

Bridgeburg, Ont.—Sanitary Engineer Dallyn of the Provincial Board of Health met the Fort Erie and Bridgeburg Councils in a conference on Fort Erie's sewer problem.

After giving a brief outline of the situation, Reeve Barnhart of Fort Erie, introduced Mr. Dallyn to the meeting. Mr. Dallyn told the assembled councils that provincial authorities were anxious to see Bridgeburg and Fort Erie get together on a practical solution of the question. He intimated that no unduly onerous conditions would be imposed by the Provincial Board of Health in regard to the treatment of sewage, especially as the Americans on the other side of the river have not done anything in this respect and there is apparently no prospect of them doing so in the near future. Bridgeburg's water supply must be protected, however. He suggested that the two places should co-operate and install a combined pumping plant on the present site of the Fort Erie plant.

Why Sewage Does Not Freeze

A Short History on Germ Life—What Sewage is—Why the Dosing Chamber and Field Tile Area—Quantity of Friendly Bacteria on Ground

Written for Sanitary Engineer by EDWIN NEWSOME, Consulting Sanitary and Heating Engineer

TO BETTER understand why the effluent discharged by a syphon from the dosing chamber into the field tile pipe does not freeze, requires that the student be taken behind the scene, and given a little history regarding germ life in its relation to the laws of fermentation, sewage disposal systems, etc.

The first knowledge we have on record was handed down to us by one, Leeuwenhoek, a Dutch microscopist, towards the close of the seventeenth century. Leeuwenhoek was working with a number of his simple lenses, when he noticed small living organisms, which we now know as microbes, germs, bacteria, etc., etc. Beyond mentioning their existence, however, his observations told us little or nothing, nor can much be said of the studies which followed during the next one hundred and fifty years. During this period, however many more powerful microscopes were developed, and these were turned to the observation of these minute organisms, but the majority of observers were contented with simply seeing these little wonderful particles of life. The best that can be said up to that time is that too many men just marvelled at the activity, the changing state and form of the germs, and uttering many exclamations of astonishment at the wonders of nature.

About this time certain men began to speculate as to the possible casual connection of these organisms with diseases, and for a while, medical men became interested but only in a very casual way.

A few men of more scientific natures paid some attention to these little and most wonderful organisms, among whom we should mention Von Gleichen, Muller, Needham, and (of comparative recent years) Pasteur. But it was during the nineteenth century most of the real advancement took place; previous to that only from curiosity was any attention paid to germ life.

Muller did, however, make a study sufficient to recognize that there were several distinct types, and went so far as to attempt to classify these bodies. They were not regarded as of much importance, but simply as the most minute forms of living organisms known.

Then came along a celebrated scientist, "Liebig," a student well up in the laws of fermentation, a process he terms as "Chemical" and not, as it were, having any connection with "Living Organisms."

As a matter of fact, their even casual connection with fermentation and putrefactive process was entirely obscured by the overshadowing weight of Liebig.

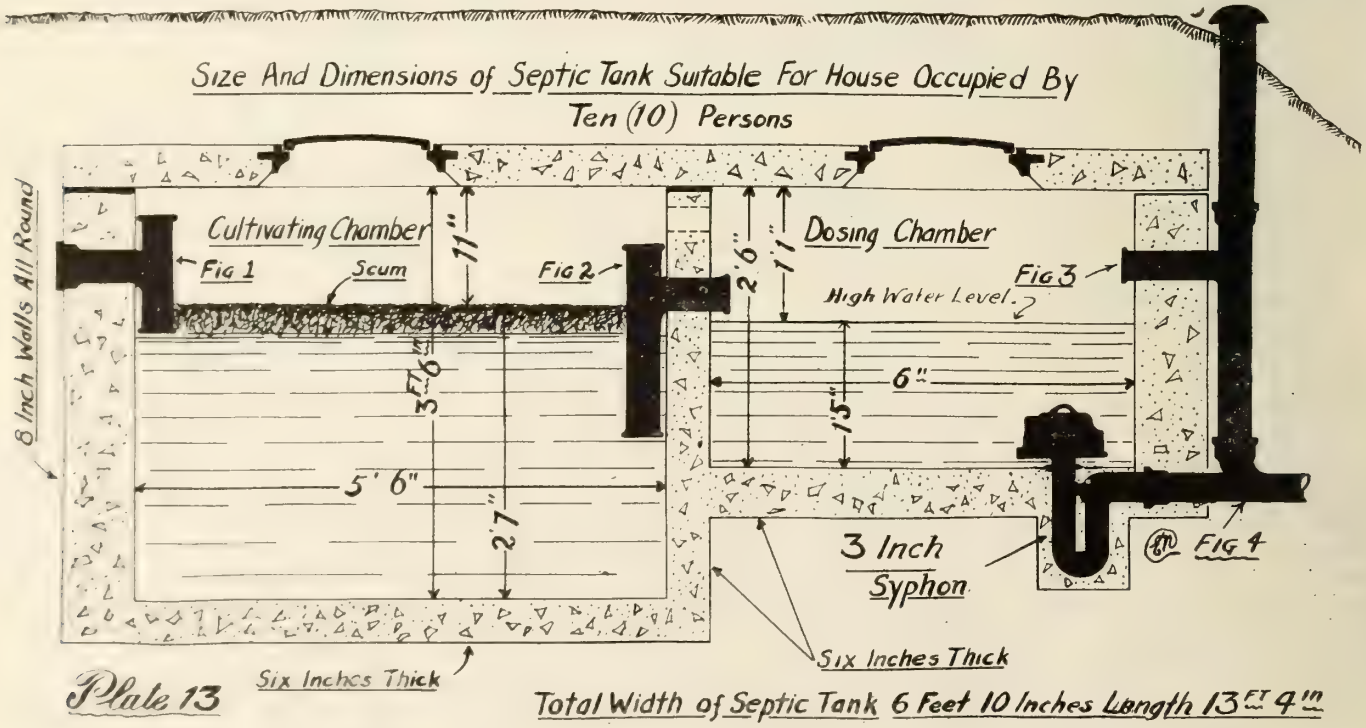
Liebig insisted that all albuminoid bodies were in a state of chemically unstable equilibrium, and if left to themselves would fall to pieces without any need of the action of microscopic organisms.

The force of Liebig's authority, and the brilliancy of his exposition led to the wide acceptance of his views, and the temporary obscurity of the relation of microscopic organisms to fermentation and putrefactive process. The objections to Liebig's views were hardly noticed, and the force of experiments of many very able scientists were painfully ignored.

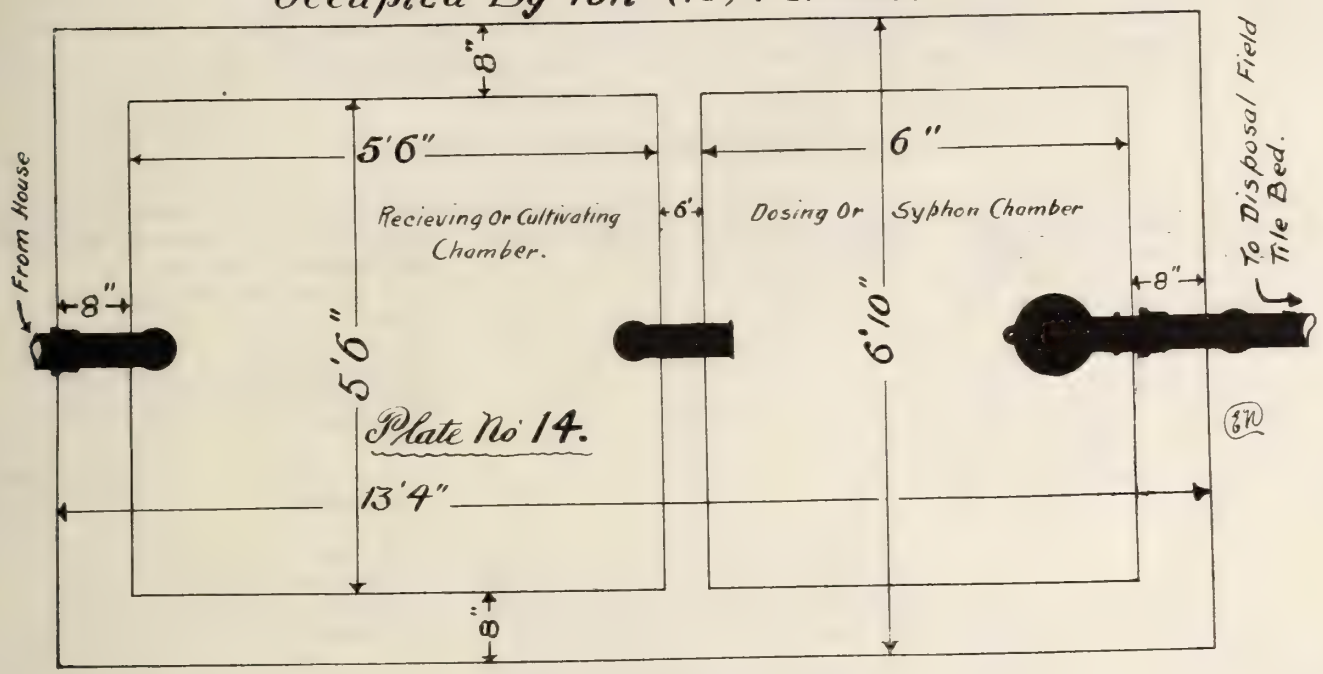
It was Louis Pasteur who brought bacteria to the front, and it was by his labors that these organisms were rescued from the obscurity of scientific publications and made objects of general and crowning interest.

It was Pasteur who first successfully combated the chemical theory of fermentation by showing that albuminous matter had no inherent tendency to decomposition. It was Pasteur who first succeeded in actually demonstrating that certain species of microscopic organisms are the cause of certain specific diseases, and in suggesting successful methods of avoiding them. The wonderful thing was that all these wonderful discoveries were made in rapid succession.

Within ten years of the time that his name began to be heard in this connection by scientists, the subject had advanced so rapidly that it had become



Plan With Size Of Septic Tank Suitable For House Occupied By Ten (10) Persons.



quite evident that here was a new subject of importance to the scientific world, if not to the public at large, and his claim to be considered the founder of bacteriology will be recognized from what has already been mentioned.

What Are Bacteria?

The most interesting facts connected with the subject of bacteriology concerns the powers and influence in nature possessed by the bacteria.

The morphological side of the subject is interesting only to the scientist and to him alone. Still, it is impossible to attempt to study the power of bacteria without knowing something of the organisms themselves.

In shape, bacteria are the simplest conceivable structures, although there are hundreds of different species. They have only three general forms which have been aptly compared to billiard balls, lead pencils and corkscrews. Spheres, rods, and spirals represent all shapes. In size it is almost impossible to compute. But so as to give our reader a slight idea, it might be stated that 281,500,000,000 would form about a solid pint of bacteria, and weigh about a pound, and such a quantity would be produced in about two days from one single microbe.

Organic Matter

As in nature, so in a septic tank, there is life, and where life is active, there is progress in some form or another taking place, either for good or ill. Sewage is organic matter, and organic matter is anything that possesses life, or is the product of the vital activity of anything that possesses life. It might be in the form of domestic washes contaminating vegetable matter like cabbages, potatoes, rice; or animal matter like flesh, or blood and bone.

The organic matter of household sewage, outside of excreta and urine, consists of tea and tea leaves; coffee and coffee grounds, soap suds, fats, oils and grease from cooking and crumbs of bread and the like, as well as paper from water closets and numerous other matters that enter into the composition of household wastes, and a small sewage disposal system is in actual fact a small bacteria farm, a plant which creates active co-operation between certain forms and bodies.

Inorganic Matter

Sewage, no matter in what form contains organic and inorganic matter. The former has already been referred to. The inorganic matter in sewage principally is in solution, and consists principally of mineral salts that have been dissolved by the water when percolating through the earth or running along the surface. Most of the inorganic matter in sewage is present as a constituent of the water that as a rule supplies the household.

Principles of the Intermittent Discharge

If organic matter is deposited on the surface of the ground certain visible changes take place. For example, going through a field where cattle have been grazing, the dung will be found to have a hard dry crust. Underneath the micro-organisms have reduced the dung to an "earthy" substance, and the ground in that neighborhood will be highly fertilized and charged with friendly bacteria.

When sewage or other wastes are buried underground, the same action though not visible, takes place and any minute solids in suspension in the effluent are attacked by the aerobic bacteria, the germ which requires oxygen for its existence.

Most of the micro-organisms found in the ground are "Aerobic," and the lower the ground is tested for such germs, the fewer will be found. That is why the field tile pipe should never be buried too deep.

Certain tests have been made from time to time and the findings have been that millions of aerobic germs are present in one gram of soil. The results of the tests were about as found in the accompanying table.

(Continued on page 40)

Distance From Surface	Number of Bacteria Per Gram of Soil
0 to ½ inch	1,760,000
½ to ¾ inch	105,000
1¼ to 1½ inch	207.200
2 inches	60,200
5 inches	63 400
8 inches	30 700
12 inches	34,100
19 inches	12 300
60 inches	4,100

Why Those Profits Don't Materialize

Wrong Figuring of Percentages Responsible for Many Costly Mistakes—Rates for Figuring Percentage on Selling and Cost Price—How to Find Percentages

Written for Sanitary Engineer by G. W. HAFNER

TRADITION says figures don't lie. Yet, the wrong interpretation of figures may throw the head of the business completely off the track. Mercantile agencies report that a large number of commercial failures are directly due to the proprietor's or manager's belief that the business is making a profit, when, as a matter of fact, it is running at a loss. And the reason for this is that, in at least the majority of cases, the business man has been deceived by the use of percentages in allowing for profits.

What is Percentage?

In using percentages as a tool to work with, we should have a clear understanding of what percentage is. Percentage is a standard of comparison for amounts, just as a thermometer is a standard of comparison for temperature, or an inch, foot or yard is a standard of comparison for lengths. The word "percentum" means 100 parts, or 100ths. Therefore, amounts are compared by per cent. or hundredths, as lengths are compared by inches and feet, and temperature by degrees.

Accordingly, one amount compares with another amount as each contains a less or a greater number of 100ths, in the same manner that one temperature compares with another temperature according as it contains a greater or less number of degrees, or that one length compares with another length as it contains a greater or less number of inches. It is seen from this that percentage is simply a means for measuring figures.

How to Find Percentages

In finding percentages, we always have a clearer view of the matter, if we put the figures in the shape of a fraction. Percentage, from the viewpoint of mathematics, is fundamentally nothing else but decimal fractions. You say that 50 is one-half of 100. That means that 50 is fifty one-hundredths or 50 per cent. of 100. Likewise, 20 is twenty one-hundredths or 20 per cent. of 100; and ten is 10 per cent.; and 5 is 5 per cent. The principle here is the same as that governing the change of common fractions into decimals, which is: "Divide the numerator by the denominator," or "divide the upper figure of a fraction by the lower."

To illustrate, let us assume that the annual sales of a certain business amount to $100,000.00, and that the annual expenses aggregate $25 000 00. What we want to determine, first, is what percentage of $100,000.00 is $25,000.00. To do this we put the figures in the shape of a fraction, and divide the upper figure by the lower, thus:

$$\frac{25{,}000}{100{,}000} = 25{,}000.00 \div 100{,}000 = .25$$

20000.00

500000

500000

We find, then, that the total yearly expenses of $25,000 represents 25 per cent. of the total yearly sales of $100,000. And we know from this that, in making up our selling prices, we must add 25 per cent. for expenses, plus whatever margin of profit we desire to make.

Why Anticipated Profits are Not Realized

This is all apparently simple enough. And yet it does not always work out just right, it seems. Let us see, then, what it is that tangles up so many of us in attempting to handle percentages.

For purposes of illustration let us take, first, the method of the business man who knows nothing about what his expenses are. He has perhaps heard some other man in the same trade or industry say that he figures to make 10 per cent. total profit, and because that is what he thinks others are asking, he will figure something like this on a sale, which costs him, say, $20.00.

Cost of goods	$20.00
Add 10% of $20.00 for profit	2.00
Total	$22.00

He will probably mark the goods to sell for $25.00, thinking that the extra $3.00 will cover his overhead expense, and that he will make his 10% profit and perhaps a little over.

Wrong Figuring of Percentages Eats up Profits Almost as Much as Excess Overhead

Let us see, now, what has really happened:

Cost of goods	$20.00
Expense, 25% (not of $20.00, but of $25.00, which will be explained later)	6.25
Total cost	$26.25
Sale price	25.00
Net loss	$ 1.25

or 5 per cent. of the selling price.

Next let us illustrate the method of the business man who knows from last year's figures, that his expenses amount to 25 per cent. of his sales, but does not know how to apply that knowledge correctly.

Probably his estimate will show up like this:

Cost of goods	$20.00
Expenses, 25% of $20.00	5.00
Profit, 10% of $20.00	2.00
Total	$27.00

Let us see what has happened in his case:

Cost of goods	$20.00
Expenses 25% of $27.00 (instead of $20.00)	6.75
Total	$26.75
Sale price	27.00
Net profit	$ 0.25

which is .926 per cent. (less than one per cent.) of the sale, and not ten per cent.

The difference between actual and anticipated profit, developed in the above illustrations, is due entirely to the fact that two different bases have been used in arriving at the results. In the first instance, the percentage of expense of 25 per cent. was arrived at by using the sales at selling prices. In the second instance, this percentage was applied to the sales at cost prices. This is the error too often made by business men.

Suppose the cost of a given article or commodity is $10.00, and a merchant wishes to add a margin of 33-1/3 per cent. to the selling price, how would he figure it? Adding 33-1/3 per cent. to the cost will not give the desired result, because:

33-1/3% of $1.00 equals 33-1/3 cents.

$1.00 plus 33-1/3 cents equals $1.33-1/3, or the selling price.

33-1/3 cents divided by $1.33-1/3 equals 25%.

Hence, instead of earning 33-1/3 per cent. on the selling price, as he had planned, the business man would actually earn 25 per cent. only, because different bases were used in the calculation.

The following table gives the equivalent percentage to be applied to cost prices in order to secure a given margin of profit on selling prices.

Rate for Figuring Percentages

Per Cent. on Selling Prices.	Per Cent. on Cost Prices	Per Cent. on Selling Prices	Per Cent. on Cost Prices.
25	.333	38	.613
26	.351	39	.639
27	.370	40	.666
28	.390	41	.695
29	.410	42	.724
30	.430	43	.754
31	.450	44	.784
32	.471	45	.818
33	.493	46	.852
34	.515	47	.887
35	.538	48	.923
36	.563	49	.961
37	.587	50	1.00

In this matter of figuring percentages, the very first thing we must get a firm hold on is this:

To figure by per cent. intelligently we must have, somewhere, something that represents 100 per cent., which in this case is the SALE PRICE. When we attempt to figure any part of the whole as 100 per cent., we immediately get into difficulty. All component parts are measured as 100ths of this 100 per cent. Hence:

If expenses represent 25%
And profit represents 10%

We have accounted for 35%
And the cost of the goods must, therefore, represent 65%

Making the sale price 100%

In other words, the $20.00 cost of goods is 65 per cent. of the sale price, which sale price is represented by the total of 100 per cent.

In figuring percentages of this kind, the following rule must always be observed:

Divide the amount of the cost by the percentage it represents.

The answer will be the sale price.

$20.00 divided by 65% equals $30.77, which should be the selling price of the merchandise, provided the price paid for the goods is $20.00, expenses are 25% of the sales, and the dealer wishes to make a profit of 10 per cent. net.

How do we know this is correct? A method to be of any value must be sus-

(Continued on page 26)

Plumbing Specialties In Christmas Ads

Have The Plumbing Right For Xmas.
C.R.HOBEN & Company
PHONE SACKVILLE 1103
WHY PUZZLE YOUR HEAD?
McKelvey & Birch, Limited
BUILDING COSTS ARE DOWN
PIPING, PIPE FITTINGS, and PLUMBING SUPPLIES
WILLIAM RITCHIE
Non-Leakable Laundry Tubs
R. Chestnut & Sons, Ltd.
H. W. Thorne, Mgr. Plumbing Department
Phoenix Square
WHITE ENAMEL IS BEST
MOFFATT & PARR
Plumbers. Phone 591. Barrie
Plumbing on Monthly Payments
$10 down will put in your Plumbing System. Bbalance on monthly payments
W. J. WALSH
Phone 45
Dundas
King Street

Some plumbers' advertisements featuring specialty lines for the Christmas trade are shown herewith. C. R. Hoben & Co., Halifax, N.S., advertise "Have the Plumbing Right for Christmas" pointing out that there will be no possibility of marring the Christmas festivities if steps are taken to examine the plumbing. The ad by McKelvey & Birch Ltd., deals with bathroom specialty lines as Christmas gifts. The other ads with some good selling ideas contained therein are by R. Chestnut & Sons, Ltd., St. John, N. B. Moffatt & Parr, Barrie, Ont., W. J. Walsh, Dundas, Ont.

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Season's Greetings to the Trade

SANITARY ENGINEER takes this opportunity of wishing all in the trade a Merry Christmas and a Happy and Profitable New Year. The year just drawing to a close has seen many interesting developments in this industry. The pendulum has commenced to swing backward from the extreme which it reached a year ago when prices and volume of business were at the lowest ebb. Progress has been made and the price trend has turned in an upward direction. There are signs of continued improvement but there are dangers even in improvement, and care should be exercised to preclude any developments which might form the basis of another period of undue inflation. Next year should be a good one for business men who exercise care in the conduct of their business and take every advantage to learn more about their field. It is here that Sanitary Engineer will render its service and close co-operation of readers will result beneficially to all in the New Year.

Effects of Poor Ventilation

A CERTAIN well known owner of a group of large, profitable restaurants, when questioned about his business policies, made the statement, "Poor ventilation combined with an uninviting atmosphere in any dining place will kill any appetite. Never allow a patron to come into your restaurant with a 75 cent appetite and leave with a 15 cent meal charge."

In this remark one detects the true psychology of business which, after all, is but a keen appreciation of the psychology of the little thing and its influence upon the tendency to buy or indulge. The human appetite for food is one of the most subtle things in the world of abstract things. It can be either whetted or completely destroyed in the space of a second's time.

While it is true that attractive and pleasing appointments in restaurants and cafes provide distinct appeal, the effort and investment required to maintain them fall short of their accomplishments if the atmosphere where one dines is heavy with greasy fumes and kitchen odors.

Many people are daily forced to dine where eating becomes a daily routine to be hurried through as quickly as possible. To create an inviting appetizing atmosphere is the first fundamental of the restaurant business, if maximum revenue is desired.

It is a fact which may have escaped a large portion of American restaurant owners that the flies—the greatest of all germ carriers—never remain in a room through which a steady current of air is moving. Flies cannot fight currents of air. The heavier and quieter the air the more active they become. This serious evil can be practically eliminated with a properly functioning ventilation system.

Foodstuffs are also prevented from spoiling when fresh, clean air is supplied in abundance. Fruits and vegetables, being more perishable than other items of food, always decay very rapidly in poorly ventilated enclosures. When you consider the relation of the food we eat to the health which must be the very fabric of our existence, then certainly we owe our support to any law which compels the observation of strict sanitation in the places where we dine. Bad air is a violation of natural law. Good, clean air is given us as a body, health and strength builder. Every restaurant and cafe owner should fulfil his moral obligation to the public he serves, by operating his establishment under a system of ventilation which contributes to public health and welfare.

Ventilating Gas Heaters

THE DEATH of a young girl by suffocation from the use of a gas heater has drawn attention to the dangerous practice of using such appliances without ventilating flues. The verdict of the jury at the inquest was that ventilation should be made compulsory. Experts gave strong testimony in support of that opinion. The Provincial Board of Health passed a regulation to that effect in 1918, but the Order-in-Council necessary to bring it into effect has not been passed.

The question of expense ought not to govern in a matter involving the safety of life, but it might be well to have more information on this point. As there is no danger from sparks or flame, such as arises in the construction of a chimney, the provision for carrying off the fumes ought not to be very expensive. Ventilation should be compulsory, and at the same time the public should be enlightened as to the mode of providing it as simply and cheaply as possible.

A Common Oversight

DISCUSSING advertising matters with retail plumbing firms recently, numerous cases have come to the attention of Sanitary Engineer where various irrelevant charges are being entered against advertising account. Some such items include advertising in picnic, bazaar and such programes designed solely as revenue producers, and in which an advertisement is merely a charitable gift. They also include free goods, donations to religious, charitable and fraternal organizations, entertainment expenditures, rebates, bonuses, price lists, calling cards, printing used outside of advertising work, demonstrations, attending conventions, personal expenses of various sorts, cartons, labels, fancy containers, sampling, etc. These are just some of the charges which it is found are being charged against advertising account by some plumbers.

In such cases it is little wonder that many men question if their expenditures do not exceed the return from such advertising expenditure. While this policy may be the easiest way of taking care of certain minor charges, it is evident that it is grossly unfair to advertising. The inevitable result of working a willing horse to death will surely follow such a policy. Examination shows that many such expenses should be charged against selling costs and personal expenses. They are all probably legitimate expenses, but they are being accounted for incorrectly due to an inefficient system of bookkeeping. Each division of advertising, of selling, of finance, of administration should have its separate account. It is only by following this policy that a true record of the business can be kept, and rectifying measures taken at the right place when trouble develops.

Christmas Greetings

TO FELLOW members of the Canadian Association of Domestic Sanitary and Heating Engineers, and all others connected with the trade, we extend our best wishes for a very Merry Christmas and a Happy and Prosperous New Year.

The holiday season of 1922 marks the closing of a successful year in the Canadian plumbing and heating industry. While one year ago many of us were of the opinion that the coming year would bring a continued betterment over conditions which we were previously forced to face, few of us were optimistic enough to predict returns such as have been shown during the past twelve months in the building industry. It was fully realized that the country was sorely in need of new building, especially more homes both in urban and rural districts, but with building materials generally and labour at a higher cost than in years previous to the war it was considered doubtful whether or not the much needed development would be carried out.

Building returns, however, month to month, have shown a gratifying increase with the dwelling-house type of construction proving more prominent, although most master plumbers and engineers have also benefited through larger contracts.

Labour, a factor in which we are all very much interested, has continued on a satisfactory basis throughout the year, devoid of strikes and disturbances which are often-times detrimental to employee and employer alike. Our mechanics have made progress for themselves and the masters by working conscientiously and giving value for value. It is a little early to determine the ill effects which unemployed will have on our communities during later months of winter, but earlier indications point to a slight improvement over the past two years, more men finding employment later in the season than has been the case recently.

TELESPHORE LATOURELLE

President Canadian Society D. S. and H. E., who extends Xmas greetings and New Year's wishes to the trade, and deals briefly with the outlook for 1923.

Headway toward the apprenticeship question in our trade has been made in various localities, and locally we have taken a step in the right direction to fill vacancies which are bound to occur. Earlier this season a plumbing and heating class was formed in the Montreal Technical School, and from point of attendance and earlier enrolment we have every reason to believe that the venture will be crowned with success. Provisions have been made for both English and French speaking pupils, this being all important in this community.

Future development, or advancement, in the trade would seem to hinge not only on business obtainable in cities and towns, but in country districts where there is an extensive movement now on foot towards better homes for our rural customers. Farmers are realizing more and more the advisability of establishing a modern home for the health and convenience of their families, and the inducement to keep the younger generation in an attractive environment. They have been educated to a large degree along these lines by the plumber and heating engineer, and we believe much good work among them will be continued during 1923.

The market for plumbing materials is now on a much steadier basis than was the case twelve months ago. We were then on a declining market, and while this was beneficial inasmuch as it was leading towards more reasonable prices for the builder it did not help the merchant plumber in many ways. With a steady to firm attitude in the market for most lines (at lower levels than last year) a better outlook is presented.

Because of these improvements we should look with confidence into 1923.

T. LATOURELLE, Montreal,
President Canadian
Society D. S. & H. E.

Over 900 New Water Services in Edmonton

Edmonton, Alta.—Over nine hundred new water services have been installed this year, indicating the improved facilities afforded by the city in the way of sewer and water extensions.

Another surprising feature is that 179 houses which were mainly erected during the boom days have been made modern through the installation of sewer and water. At a total estimated cost of $62 650 and an average cost of $350 these dwellings have been improved.

No less than 274 houses in various parts of the city have been provided with water services only at a total estimated cost of $27.400. The average cost is placed at $100.

These installations were largely made as the result of the water extensions which were authorized by the city council.

The building inspector's department reports that 504 actual installations of sewer and water have been made this year, this number of plumbing permits having been granted. This number was made up of 325 permits for new houses erected this year and 179 old houses. It is estimated that $176,400 has been expended in connection with the city mains and in installing plumbing fixtures.

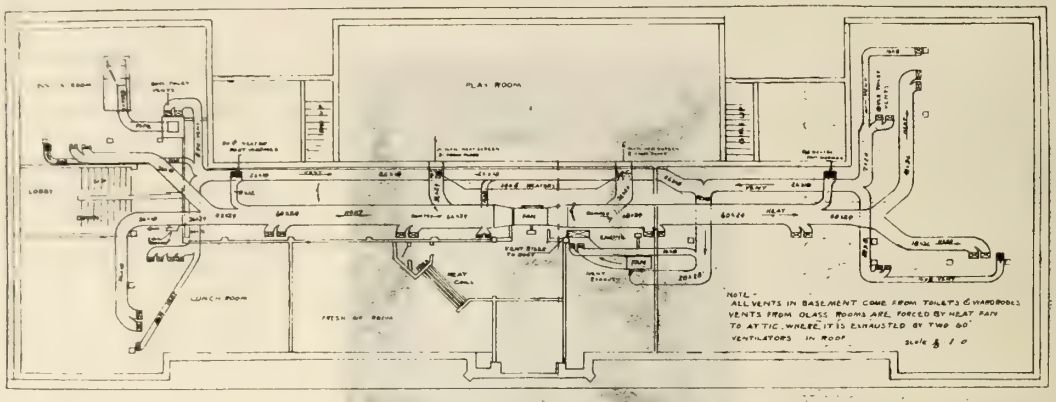
While the new sanitary tax on those with buildings on or near sewer and water services may have caused a number to connect up in order to avoid the levy, city officials state that the main reason was the desire to take advantage of the extended facilities.

AWARD FRANCHISE FOR CENTRAL HEATING PLANT

Vancouver.—The Vancouver District Steam Heat Co., Limited—thus far unincorporated—has been given the central heating plant franchise and has posted marked cheques totalling $10,000 as an evidence of good faith. The franchise is a thirty-year agreement terminating in 1953. At the end of the first year, one mile of pipe must be in operation with double that amount within thirty months. If the sum of $25,000 is not spent on site and plant at the end of the year, the agreement terminates. The council reserves the right to purchase plant and equipment at the end of twenty years and, for the first five years, will receive an annual royalty of $1,000 after which one per cent. of the earnings will accrue to the city.

Heating and Ventilating for School

Prepared for Sanitary Engineer by O. W. Kothe, Principal, St. Louis Technical Institute, St. Louis, Missouri.


PLAY ROOM
LOBBY
WATCH ROOM
NOTE -
ALL VENTS IN BASEMENT COME FROM TOILETS & WARDROBES
VENTS FROM CLASS ROOMS ARE FORCED BY HEAT FAN
TO ATTIC WHERE IT IS EXHAUSTED BY TWO GO"
VENTILATORS IN ROOF

Fan Ventilating System for School Building.

IN THE last 12 to 15 years, the exhaust fan has played a great part in creating positive circulation, carrying heat and diffusing the vent air. Now it is seldom that a school, hotel, or other public building, is not equipped with some sheet metal duct construction for conveying the fresh heated air and also taking away the foul air. Some of these jobs are quite large, taking from 6 to 18 months to complete and sometimes longer; so there are a good many thousand pounds of sheet iron worked up.

In our plan of this drawing we show a system installed in a school house a few years ago, and it shows how a fan is placed toward the center of the school for diffusing the air both ways. A great advantage with fan connected heating systems, is that we have a positive flow of air, and this air entering a room will cause other air to circulate and escape, as best it can. This means of escape is often made by sheet metal ducts placed near the floor, close to the incoming register, so that the air must flow throughout the room and circulate and eventually find its way back to its starting point before escaping. But in ventilating the construction of building is such, especially in later years, that there is a considerable leakage, through window sills and doors, to say nothing of fireplaces, outdoor registers, etc.

The sheet metal man who is acquainted with these systems feels it is one of the greatest fields of work developed in recent years, and in this, he is perfectly right. A great many of these workmen feel that most of this work is just plain common straight and square work, elbows, tees and those fittings are made as simple as possible.

This may be true to the vision of rank and file, but not for men who follow engineering practices, and have ample occasion to design and lay out many wonderfully complicated fittings. In speaking of designing, it is not always that the engineer designing the system, gives full details, and so much is left to the man on the job to use his judgment and experience. This is especially true where work must be exposed. In such cases some workmen make fearful jobs, while others take care of their designs and make up so that a very graceful appearance is left.

Then there is also the case where the shop workman must get out various parts in the shop and ship them to the job. On many of the larger jobs, a cornice brake is shipped direct to the job, and here all things are made up, always working in advance of the erecting gang. But when the various things must be made up in the shop, the workman must figure out a system of numbering the various parts. To do this, it is best to have some number possibly as a V to represent vent, and H to represent heat ducts, and then start from either the fan and work both ways, having a system of numbering north or south or east or west, or the name of the wing to which the duct is to lead to. These numbers must be placed direct on the plan, as well as on the fitting, so that when the work is shipped to the job and another workman not acquainted with your schemes, is sent to install the work, he can easily decipher the various fittings and place them in accordance to the marks on your drawing.

In either event, the mechanic getting out the work could start on one end and continue all the way along, thus finishing up one run of duct at a time. There is nothing any worse than jumping around from one duct to the other, as fancy might dictate. Some engineers designing heating systems are very particular, and require their specifications to be lived up to minutely, while others are not so particular, and permit the sheet metal man considerable latitude in design as well as in using material, that former practice has found satisfactory.

The matter of studying drawings to become acquainted with the engineer's intention, is of great importance to the mechanic. This is something that no beginner can pick up on the spur of the moment, but it requires many months of continuous examination and working from, taking measurements, following designs, etc. Another splendid method of becoming acquainted with plans is to begin to draw them, and still another is to borrow such plans from various shops and from them make detailed lists and get out the various fittings on paper, filling in between the fittings and straight pipe. After the plans have been mastered they are then returned. This practice has great advantages for any ambitious workman.

DISCOURAGE ELECTRICITY FOR HEATING

Ottawa.—The two companies supplying electric power to Ottawa are refusing to accept further contracts for heating homes. Electricity is not going to solve this city's heating problem for the present, or for many years to come, according to A. A. Dion, general manager of the Ottawa Electric Co.

WHY THOSE PROFITS DON'T MATERIALIZE

(Continued from page 23)

ceptible to mathematical proof. Let us therefore prove the proposition thus:

Cost of goods	65% of $30.77 equals	$20.00
Expenses	25% of $30.77 equals	7.69
Profit	10% of $30.77 esuals	3.08
Total	100% of $30.77 equals	$30.77

This method is absolutely correct, whether it is aplied to a 50c sale or to a $500.00 sale.

The selling price is 100 per cent., or the whole. All component parts are represented by 100ths, or percentages of the whole. There is nothing in the entire equation that represents 100 per cent. except the selling price. Hence, all percentage computations should be based on the selling price.

Princess Drops Pearls in Bath and No One Can Bathe While Drains Are Being Searched

Being the True Story Which Most Closely Approaches the Fables Which Have Appeared in Sanitary Engineer From the Pen of Major L. L. Anthes

BERLIN.—The guests of the Hotel Adlon clamored in vain last Sunday for baths while the plumbing of the whole establishment was shut off. Workmen, servants and firemen were searching the drains for two magnificent pearl pendants that had been lost by the wife of Prince Joachim Albrecht, cousin to the former Kaiser.

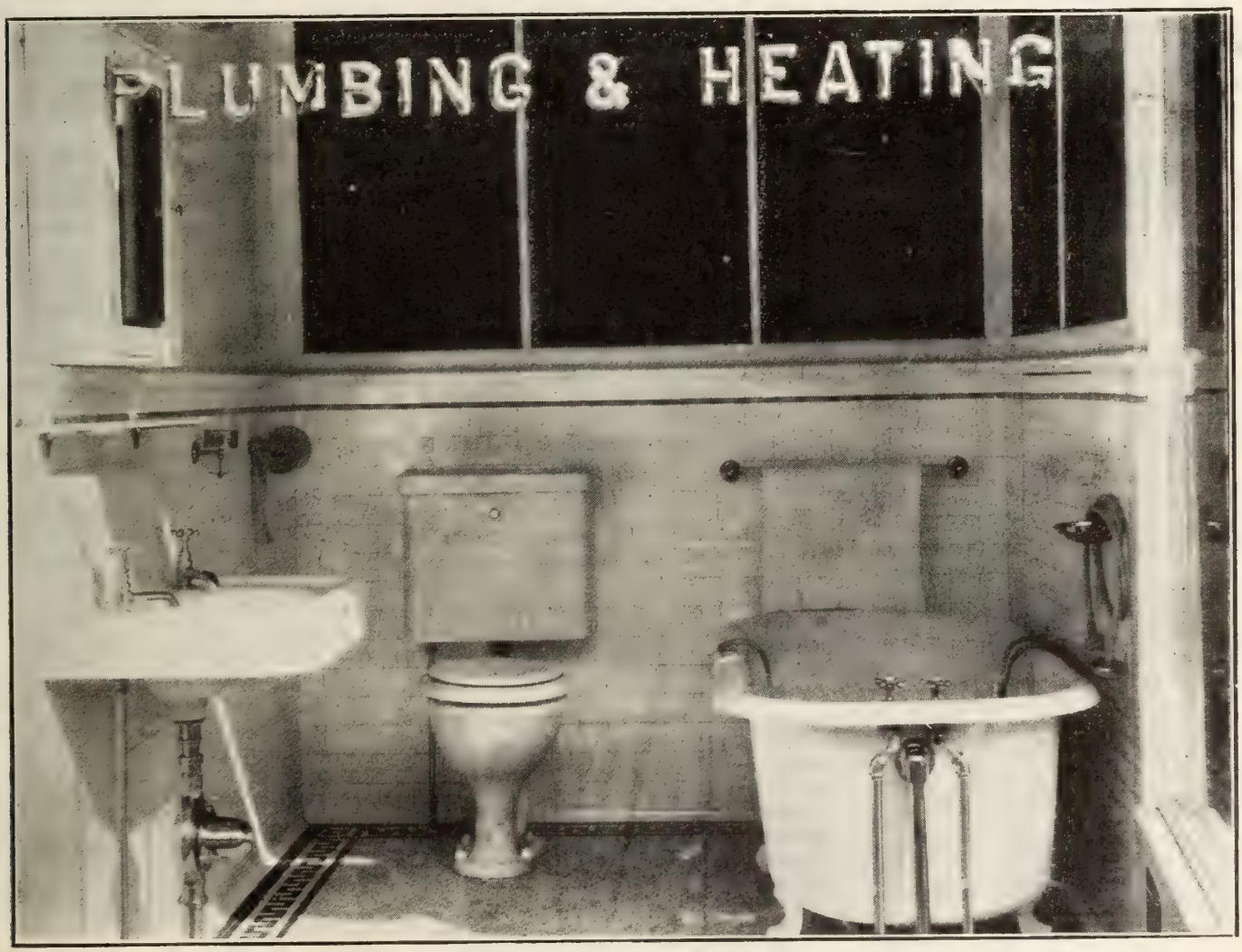
The Prince's bride, who is of lowly origin, received the jewels on the day of her wedding and has worn them continuously day and night. Last Saturday night the Princess was taking a bath when suddenly the chain suspending the pearls broke and the gems disappeared in the depths of the hotel plumbing system. The Princess frantically summoned the entire staff who, eager for reward, shut off the water and otherwise turned the house topsy-turvy. Thus far the search has failed.

The embarrassing circumstances of the loss have been snatched by the Communist newspapers, one of which recounted the incident in risque verse on the front page. Joachim's family skeleton has been dragged from the closet and the auburn haired Princess identified as the daughter of a porter. Another paper, speaking of the couple as being constantly the centre of interest at the hotel, reprints the story of ho the Prince a year ago in the dining room smashed a champagne bottle on the head of Captain Klein of the French army because he refused to stand while "Deutschland uber Alles" was played, causing a free-for-all fight on the part of the fashionable guests.

Complaints were lodged against the Princess recently when an Angora cat became the mother of seven kittens in her room and in feline generosity began distributing them through the halls and the adjoining apartments, to the accompaniment of lorn wails of her offspring.

LABOR ORGANIZER'S VIEW OF EUROPEAN SITUATION

According to John Bruce, A. F. of L. organizer for the plumbers and steam fitters, who was a delegate to the Industrial Peace Conference at Geneva, the conditions of Europe at the present time are deplorable. Speaking at the Labor Party Forum in the Labor Temple he severely criticized the peace terms made by the allied nations following the armistice, and contended labor should have had a greater voice in the matter.



Though it cost F. J. Hogan, plumber and tinsmith, of Montreal, the sum of $500 to arrange this window display, he has found it to pay handsome returns for some months past. It is a permanent window arrangement showing all up-to-date bathroom fixtures to the smallest detail. It is kept well cleaned and is a standing exhibit of the modern equipment available for furnishing the bathroom. This display has caused many people to investigate further and become ultimate buyers. The floor and the wall for four feet up are tiled. The balance of the wall and ceiling are finished in white enamel. Everything was installed as it would be on a permanent job. Mr. Hogan says this window arrangement paid for itself in twelve months and since that time it has shown clear profit.

NEW PLUMBING GOODS

"LITTLE GIANT" PIPE WRENCH

The "Little Giant" pipe wrench is a new product of the Greenfield Tap & Die Corporation, Galt, Ont. The makers claim that this wrench can handle pipes in corners, close to walls, and similar confined places. It can be set straight on the pipe, instead of having to fit the jaws on from the side.

It is also pointed out that the "Little Giant" wrench has three parts; a handle and jaw in one piece, a movable jaw, and a hardened steel nut. There are no springs, rivets, frame or pins.

Another feature is the double set of teeth on the main jaw. The movable jaw can be engaged at option, with either of these sets of teeth with consequent lengthened life. On the larger sizes, 14 in. and greater, two additional sets of teeth are provided, making four in

all, and the movable jaw can be reversed to engage these additional sets of teeth, which are below the adjusting nut. It is being manufactured in 8, 10, 14, 18 and 24 in. sizes, of which the three smaller sizes are being introduced to the market.

SMALL VERTICAL BELT-DRIVEN AIR COMPRESSORS

The Ingersoll-Rand Company, 11 Broadway, New York, are introducing a new line of small vertical belt-driven air compressors known as Type Fifteen. In addition to the plain belt drive design, each size is built as a self-contained electric motor outfit, driven through pinion and internal gears, or by employing the short belt drive arrangement. The compressing end and electric motor of both gear and short belt drive units are furnished mounted on a common subbase, so that they are not dependent upon the foundation for correct alignment.

Several features of construction have been incorporated, of which the "constant-level" lubricating system is important. Others include the constant speed unloader; the centrifugal unloader; and the increased size of the water reservoir cooling pot.

The system used in type fifteen compressors automatically maintains a constant-level of oil. The base of the compressor forms an oil reservoir for the "constant-level" system. However, pet cocks determine the maximum and minimum amount of oil in the reservoir.

The constant speed unloader controls the unloading of the compressor by automatically opening the inlet valve when the receiver pressure rises above that at which the unloader is set to operate. When the receiver pressure has fallen a predetermined amount, the unloader automatically releases the inlet valve and allows the compressor to return to work and thus build up the receiver pressure again.

The centrifugal unloader allows the compressor to start under "no load," and permits the electric driving motor to come up to full speed before the load is thrown on automatically. This is accomplished by holding the inlet valve open until the motor has reached full speed.

The smallest size is built with either ribbed cylinder for air cooling, where the service is intermittent, or a water jacketed cylinder of the reservoir type for constant service. All other sizes are only built with the water jacket of the reservoir type.

NEW MUNICIPAL DRAINS

Ingersoll, Ont.—More work than ordinary under the Municipal Drainage Act has been undertaken by the North Dorchester council during the present year. In all five new drains were undertaken and as the weather has been favorable much later than during the average autumn it is expected all will be completed during the season. The fact that new drains have been established is taken as important evidence of progress. In many sections the new drains will now only have an important bearing on condition of roads, but they will also mean much to considerable of the farming section.

CHATHAM WATER MAINS TO BE ENLARGED

Chatham, Ont.—Though the Chatham Water Commission has adopted the idea of water mains at least 6 inches in diameter for residential streets, with a few exceptions, there are at least 27 streets in the city where four inch mains have been laid up until a few years ago.

Some of these streets are shorter than others. And on some the water mains are in a position closely adjoining larger mains of 6 inches or over.

The 4-inch main on Delaware street was laid about ten years ago, and is about the longest street in the city in which a four-inch water main exists. Six-inch mains are the rule adopted nowadays by the Water Commission.

Along the down town business streets the mains are ten and twelve inches in diameter. There are no mains in the city over 12 inches.

F. G. Mitchell, president of the London Supplies Ltd. of London, Ont., has been on the sick-list for the past year but is now improving.

Some one has said "laugh and grow fat." Did you ever see a fat hyena?

* * * *

There are all kinds of stingy people, but the one who looks over the tops of his glasses for fear of wearing them out gets the first prize.

* * * *

A pessimist is a thin girl who fears that Santa Claus may have to fill all the chorus girls' stockings before he gets to hers.

* * * *

Ashes to ashes
Dust to dust
He tried to get to
The crossing fust

* * * *

Well, it is now time for quite a number of hunters to travel through a barbed wire fence with loaded gun for the last time.

* * * *

Economy with many persons means to save on things they need to spend on things they want, remarks a plumber friend.

* * * *

Swick—"What's wrong with Pete the plumber? Doesn't he know what's good for him?"

Hick—"Yes, but he doesn't know where to get it."

* * * *

Excited Apprentice—"Did you see that?"

"See what?"

Apprentice—"That swindler dealt himself four aces."

"Waal, wasn't it his deal?"

* * * *

Here lies the body of Frederick La-Farge.
His death is too sad for description.
He was killed by a mob in a terrible charge
When he carelessly dropped his prescription.

* * * *

A Toronto plumbing salesman's wife was visiting out west. He wrote her saying: "My Treasure, I send you my best love."

She replied, saying: "My treasurer: Please send me your best check."

* * * *

"I am delighted to hear of your success on the school baseball team Harold," said the plumber to his son, "but you must remember that there are other things in life besides baseball."

"Yes, I know there is," replied the youngster, "but you see, I'm too light for football or rowing."

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

NEW FIRMS

Samuel Fielding has commenced a tinsmith business at Regina, Sask.

BUSINESS CHANGES

Fergus, Ont.—J. S. Twedale and N. L. Ham have formed a partnership in a hardware, coal and wood business.

OBITUARY

Cornwall, Ont.—Mark Hermiston of Hermiston & Conrie, plumbers, tinsmiths, etc., is dead.

Arthur M. Spear, vice-president of the Asbestos Mfg. Co., Lachine, Que., died in Montreal. Mr. Spear was in ill-health for some time past and was a patient in the Royal Victoria Hospital where he underwent an operation.

Robert J. McCauley, manager of the W. J. Maguire Co., Ltd., plumbing and heating contractors, died at his home in Montreal on Friday, December 8. Mr. McCauley had been in the service of the above company for thirty-five years, and came to Montreal twenty-five years ago to open the local branch. He was a past president of the Montreal Master Plumbers' Association, and up until just recently was a very active member of this association.

CRANE LIMITED TO OCCUPY NEW PREMISES

Crane Limited, Toronto, expect to occupy, by January 1, 1923, their new three-storey office and warehouse, Front St., West, which is to cost $125,000.

WILL NOT VOTE ON SEWAGE BYLAW

Hamilton.—No by-law for the construction of a sewage disposal works will go to the people on New Year's day, as intended. At the special meeting of the city council it was found that it would be impossible to secure sufficient information to formulate a by-law in time, and the proposition has been shelved until 1924, unless the new city council decides to consult the people during the year.

The short interim report compiled by Gore, Nasmith & Storrie was submitted, and considerable comment was caused by the fact that the engineers were not present to explain the document.

The report which was submitted dealt chiefly with the reconstruction of the west end sewage disposal works.

PLUMBERS' TEAM BANQUETED

The Toronto domestic, sanitary and heating engineer officers banqueted their winning ball team at Hunt's, Limited. Percy Mansell presided and also awarded each member of the team with a gold stickpin. Peter McMichael again presented Manager David Menzies with the trophy which has been won for the last two years by the Engineers. There were a number of short speeches from different members of the league, and Fred McCann thrilled his audience with his rumblings of bygone days, when he played ball at the Island Stadium. Messrs. Reade and Robinson provided the musical program.

PLUMBERS WILL DISCUSS SEASONAL EMPLOYMENT

London, Ont.—A special meeting of the Builders' Exchange, all sections, has been called. Other allied associations such as the Master Plumbers' Association, are being invited to send strong deputations to this meeting, as the subjects to be discussed are considered of vital interest to the whole building industry.

Especial interest is expected in the discussion on seasonal employment, as this is a matter of great concern in its bearing on costs and wages with winter unemployment. Plans are to be presented for widening the building season, so as to provide for more steady employment, which will not necessitate such high wages for short periods of occasional activity.

1923 COUNCILS TO CONSIDER TEMPORARY AGREEMENT ON SEWER USE

That Ford City and Walkerville will not enter into any temporary or permanent agreement regarding co-operative use of sewers before the close of the present council term, was evidenced at the meeting of the Ford City Council, when a communication from Walkerville was received, stating that it preferred any new arrangement to wait for the action of the 1923 councils.

The letter from Walkerville Council also stated that in no event would the town of Walkerville enter into a permanent agreement with Ford City regarding co-operative use of the sewers mentioned. The letter suggested that a temporary agreement might be reached between the two towns.

AUXILIARY PUMPING SYSTEM TO BE INSTALLED AT COBALT

Cobalt, Ont.—The Town Council has decided to recommend to the Public Utilities Commission the installation of an auxiliary pumping system, steam or gasoline-driven, the duplication of the main water line from the pump station into town and the construction of a "loop" main in the business section.

HEATING PLANT FOR HOSPITAL

Winnipeg.—A contract, calling for the expenditure of $12,436, has been entered into between the provincial government and Forbes and Christie, of Winnipeg, who will install the heating plant, steam piping and auxiliary equipment for the new portion of the mental hospital at Selkirk.

TO ERECT BIG SEWAGE PLANT

Peterborough, Ont., has been notified that the final sanction from the provincial board of health for the construction of a sewage plant there, has been given. Numerous conferences have been held, and the preliminary work has been hastened by the pressure of a writ that was served upon the city some time ago by the surrounding municipalities, who object to the use of the Otonabee River as a means of disposing of the sewage. The plant will cost over a quarter of a million.

TO ASCERTAIN WATER WASTE IN LONDON

London, Ont.—A pitometer survey to ascertain the amount of water being wasted by citizens of London and the question of whether or not it would be advisable to eventually install water meters in connection with all consumers in the city occupies the attention of the Utilities Commission.

The commissioners were asked at the last meeting to consider the advisability of having a survey of local conditions conducted within the next few months, and the pitometer plan as used in several other large cities in the Dominion was suggested. In order to secure further information, however, action was deferred.

London's water consumers are, according to figures available at the present time, extremely wasteful in their use of city water. General Manager Buchanan has frequently urged the more general use of meters, and it is quite likely that this will be the ultimate solution of the matter.

Montreal Master Plumbers' Annual Meeting

Officers Elected for the Ensuing Year—Plumbers Want Plumbing Contracts Set Directly From the Architects

MONTREAL.—The annual meeting of the Master Plumbers' Association of Montreal was held on Wednesday of this week, when matters of importance to the trade were discussed. Among these were the recently inaugurated classes in plumbing and steamfitting at the Montreal Technical School, the increase of the license fee for master plumbers at the City Hall, and the question of having heating and plumbing contracts for buildings let directly from the architects, separate from the general contract.

The treasurer's report this year was very satisfactory, showing a good surplus on the year's operations.

Officers for the Ensuing Year

Following are the officers elected for the coming year: President, Geo. E. Delaney.

First Vice-President, Joseph A. Francoeur.

Second Vice-President, James Griffin.

Chairman of the Sanitary Committee, W. U. Hughes.

Chairman of the Arbitration Committee, O. Caron.

Chairman of the Legislation Committee, Joseph St. Amand.

Chairman of the Apprentice Committee, James Buchan.

Chairman of the Price List Committee, D. A. Bethune.

Audit Committee, W. G. Borland, Arthur Noel and J. Pelletier.

Trustees, John A. Gordon, Arthur Bulong and J. E. Hardy.

Honorary Secretary, Joseph A. Belisle.

Secretary, D. K. Trotter.

Report On New Classes

A report was furnished by the principal of the Montreal Technical School on the classes in steamfitting and plumbing recently inaugurated under the auspices of the association, in which he stated: "There are fifty-four students registered, thirty-four in the French section and twenty in the English-speaking section. The attendance of students in these classes is very good and the interest they take in their work is remarkable. It will be advisable next year to form two sections, preliminary and advanced. In the preliminary the elements of mathematics, drawing, etc., could be taught, while in the advanced classes the full time could be taken up with the important subjects of plumbing and heating. I must heartily congratulate the Master Plumbers' Association on the interest they have taken in these classes, which, with their further co-operation, will assuredly be a complete success."

For some time past there has been an agitation on the part of the master plumbers to have heating and plumbing contracts let directly from the architects, and following is a statement sent to the Builders' Exchange in connection with the matter:

"Several years ago this Association appeared before you with the request that the Exchange, as a body, place itself on record as approving the principle that on all building contracts, the plumbing and heating be tendered for and awarded separately to legitimate firms engaged in the plumbing and heating industries.

"This principle was then unanimously sustained by your association and cooperation led us to render it operative. Our mutual efforts to date, however, have not been successful in most instances. Our association, therefore, at a regular meeting held some time ago resolved to apply to you a second time for your valued assistance inasmuch as you are the proper organization to present our case in a favorable light before your general contractor members.

"We feel that it is not necessary to repeat the reasons, which are well known, why we desire our technical trade to be kept entirely separate, but what we should like you to impress on your members, is that they could in turn inform the architects and engineers that they would be better satisfied, as almost every general contractor maintains, if the plumbing and heating specifications and plans were omitted from the general contract and given direct to the master plumbers and steamfitters.

"Would it be too much to ask your general contractors to agree, in a body, to omit plumbing and heating from their tenders? We do not, of course, contend that they should antagonize their architect friends in any manner, but that they should decide to use their real and best efforts to accomplish the results in an educational and concilitory manner.

"When we ourselves approach the engineers and architects, we appear to be actuated solely by selfish motives, but if your general contractors would take the same stand as ourselves, the implication of self-interest would at once be removed.

"We wish in conclusion, to thank you most cordially for your past efforts on our behalf as well as for your continuance of them of which we have been assured by your representatives direct."

Increased Fee on Plumbers' License

The question of increasing the plumbers' license fee at the city hall from $5.00 per annum to $250 initial fee and $50 per year renewal was again discussed. This has been under consideration for some time and a committee have endeavored on different occasions to get in touch with the executive committee of the city in the hope of having some action taken. Up to the present, however, the committee has been unable to discuss it thoroughly with the city executives.

H. Lavigueur, past president, and D. K. Trotter, secretary, were then appointed to follow up the matter in the hope of bringing it to a successful issue.

Curling Programme for This Winter

John Watson was appointed convener of the curling committee and it was left to him to appoint his own committee. The curling contests this year will take a longer time than in the past two years, as this is the third season of the contest for the silver cup presented by the Good Mfg. Co., and the winner of this season's competition will secure the cup as his own personal property. From indications an active interest will be taken in this sport again this season and under the direction of Mr. Watson many interesting contests will doubtless be planned.

Before concluding their business the association endorsed the resolution adopted by the executive in expressing sympathy to the family of the late R. J. McAuley. Mr. McAuley was an active worker in the association and his loss will be keenly felt.

CORRECTIONS IN RURAL SEWAGE DISPOSAL ARTICLE, DEC. 1 ISSUE

Under heading "Proper Position of Fittings" in third column on page 24, Dec. 1st issue, the following words appear: "The above statements then, lead us to consider other fixed measurements. Turn to fitting No. 1. This should be placed in the forms in such a position as to have the distance between the horizontal branch and the bottom of the tank, 2 feet 9 inches, **provided this compartment is 3 feet in depth as shown.**"

The words black face should have been "provided that this compartment is 3 feet 6 inches in depth as shown."

The other error appears on page 25 in the first colum and reads "Now, as to the height which the syphon requires to be set. These syphons have a round **head** cast on them. This **head** should always be set in line with the bottom of the tank." The word "head" should in both cases be **bead**. We regret this error.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

Markets at a Glance

WHILE current price changes in the markets for heating and sanitary supplies are not so numerous as formerly, developments in basic elements provide interest at this season. Pig iron has again receded in price, while a stronger tendency is again noted in solder, consequent upon current developments in primary metals. A quieter seasonal tone is evident in the movement of certain materials used in construction work as the interior finishing on fall buildings reaches completion. It is pointed out, however, that the volume has kept up better and has been extended over a longer period than was the case last year, owing to the fact that activity in building was consequently greater. The further decline in domestic pig iron prices is of interest and while opinions differ as to the direct effect this is liable to have on finished products, it is considered sufficient to relieve the situation on some lines. Revised quotations are now general on cotton wastes, and a firm undertone is evident, with a further advance around the first of the year thought likely. An average trade is recorded in the sheet markets, with a conservative tone in bar iron and steel. There has been a seasonal falling off in radiator trade, together with a quieter session in scrap materials. Little variation is recorded in the non-ferrous metal group, all metals showing a fair amount of strength, and tin and spelter exhibiting an inclination to recover from the recent reaction.

Montreal Markets

MONTREAL, December 14.—Of interest in the current markets for plumbing and steam-fitting supplies are the new higher prices on cotton wastes, the tendency in this direction being outlined in last issue. In the waste material markets scrap rubber and wrought iron are a little higher in price, while heavy melting steel shows a further reduction. A very strong tendency has crept into the solder markets due to the tone of tin on primary metal centres, and a revision upwards in the near future would not be surprising. Spelter and lead also remain in a firm market position. In steel, wrought iron and steel pipe are said to be displaying firmness, while in other lines such as soil pipe a slightly easier tendency is evident. In sheets, black are a little easier but galvanized are reported as steady with a firm tone continuing in production circles. Enamelled ware, closet combinations, range boilers, and compression goods, are now in the midst of a quieter season although there is a seasonal volume of business.

TROUGH AND CONDUCTOR PIPE ON QUIET TREND

Montreal.

The dull season for eavestrough, conductor pipe and elbows is now at hand, manufacturers and distributors reporting very little doing. Current quotations are unchanged with a steady to firm tone in the market owing to the slight firming in galvanized sheets at production centres. Following are list prices and discounts:

EAVESTROUGH:

O. G. round and half round, per 100 ft. 8 in., $16.90; 10 in., $18.70; 12 in., $22.20; 15 in., $29.80; 18 in., $37.80.

O G. Square head, per 100 ft.; 8 in., $15 90; 10 in., $17.70; 12 in., $21.20; 15 in., $28.80; 18 in. $36.80.

Discount 70 per cent.

CONDUCTOR PIPE—Round, Plain and Corrugated, per 100 ft.; 2 in., $18.40; 3 in., $22.80; 4 in., $39.60; 5 in., $40.00; 6 in., $49.00; 6 in., $49.00.

Discount 70 per cent.

CONDUCTOR ELBOWS—

Plain or corrugated, price per doz.

2 in., $5.25 3 in., $6.00; 4 in., $10.50; 5 in., $24.00; 6 in., $29.00.

Discount 60 per cent.

REVISED QUOTATIONS ON COTTON WASTES

Montreal.

As outlined in last issue, new higher prices on cotton wastes were issued on December 4. Dealers describe the undertone of the market for these products as remaining very firm, and a further increase is expected in some quarters around the first of the new year. Following are price levels now given:

COTTON WASTES—	Per lb.
Cream polishing	0 19
White, XXX extra	0 17
White, XX grand	0 16
White XLCR	0 15
X Emoire	0 13½
X Press	0 12
Colored—	
Fancy	0 14
Lion	0 12½
Standard	011
Popular	0 09½
Keen	0 08
Wool Packing—	
Arrow	0 24
Axle	0 20
Anvil	0 16
Dominion Wipers—	
White cotton	0 20
Colored cotton	0 14

STILL SOME ACTIVITY IN CORRUGATED SHEETS

Montreal.

Although the season for corrugated sheets is now well advanced dealers still describe the movement as seasonal, while much quieter than during the fall months. The usual dullness of winter months, however, is looked for at any time, one local manufacturer stating that they expected little further activity after the middle of this month. During the quiet season there is usually a little easier tone in the market for these products, but with the galvanized sheets displaying a firmer tendency this season the undertone of the market is now said to be quite steady. Unchanged list prices and discounts are the following:

CORRUGATED SHEETS	Per 100 Sq. Ft.
No. 28 gauge	6 50
No. 25 gauge	7 00
No. 26. U. S. gauge	8 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50

Less 10 per cent.

Lighter than 24 gauge and wider than 27 inches, 75c. per square extra.

RAW MATERIAL TREND AFFECTS SOIL PIPE

Montreal.

Current discounts on soil pipe and fittings are unchanged with a slightly easier tone in the market. Considering the trend of pig iron and the improvement in the coal situation, there is a possibility of a price change in a downward direction at a little later date, according to one local dealer. Prevailing quotations are:

SOIL PIPE—	
2 and 3 inch	35%
4 inch	35%
5 and 6 inch	35%
8 inch	net
FITTINGS—	
2 to 6 inch	45%
8 inch	net

SLIGHT REVISIONS IN SCRAP MATERIALS

Montreal.

There is little trading again reported in scrap metals and all lines have a very dull market tone. Slight revisions however are made in quotations on some materials, rubber shoes showing a further slight increase, also wrought iron scrap. Heavy melting steel is again easier and nominal prices are reduced one dollar per ton. There has been a little inquiry for iron and steel, but this has now subsided into a state of dullness. Following are average dealers' buying prices:

SCRAP MATERIALS—	
Automobile Tires	0 40
Rubber shoes	0 02¾
Yellow brass	0 05 to 0 06
Red brass	0 08¾
Light brass	0 04
Scrap zinc	0 04½
Lead, heavy	0 04½
Lead, tea	0 03
Light copper	0 08½ to 0 09
Heavy copper	0 11½
Wrought iron, R. Rd., No. 1 per gr.ton	11 00
Malleable scrap (ton)	9 00 to 10 00
Pipe scrap (ton)	7 90
Heavy melting steel	9 00 9 50
No. 2 busheling	3 00
Boiler plate	8 00 to 9 00
No. 1 machinery cast	20 00 to 22 00

NO FURTHER CHANGE RECORDED IN RANGE BOILERS

Montreal.

Range boilers are now selling at revised quotations announced at the first of the month, and although the season is advancing a fair amount of business is still in evidence. Dealers however anticipate a slackening at any time as the approach of the holiday season usually brings the close of the heavier movement in these products. Prices are firm at following list and discounts:

RANGE BOILERS:—	
5 Gallon	$13.50
12 "	14.00
18 "	15.00
25 "	16.50
30 "	17.50
35 "	20.50
40 "	22.75
52 "	38.00
66 "	60.75
82 "	74.00
100 "	103.00
120 "	117.00
144 "	164.00
168 "	187.00
192 "	210.00

Std., less 40 per cent.; Ex. Heavy, 30 per cent.

WROUGHT PIPE MARKET RETAINS FIRMNESS

Montreal.

The undertone of wrought iron and steel pipe is said to be one of the strongest in the steel industry, this tendency having been well maintained for some weeks past. The delivery problem on raw materials, while improved, is still a strong factor in the market and demand is also keeping up in good volume notwithstanding the season of the year. In Southern primary markets much the same conditions exist, and although there is a slight weakening in other steel products with pig iron and coke on a little lower price basis, chances of an easier feeling in the wrought pipe market are considered remote for some little time.

MODERATE TRADE REPORTED IN SHEET MARKETS

Montreal.

There is very little change on the local sheet markets, prices remaining at former levels and trade continuing in moderate proportions, although the sales movement in general was described by one large distributor as slightly improved over the previous weeks. In black sheets there is a little easier tone and one firm has slightly reduced quotations, but this movement is by no means general as yet. In galvanized a steady to firm tone is recorded with these sheets still showing more activity than other lines. Tin plate and terne plate also have a steady undertone with little or no change in the market.

BLACK SHEETS—	
10 gauge, base	4 25
12 gauge	4 35
14 gauge	4 45
16 gauge	4 55
18—20 gauge	4 80
22—24 gauge	4 85
26 gauge	4 90
28 gauge	5 10

GALVANIZED SHEETS—	Queen's Head	Fleur de Lis
28 gauge	7 25	7 00
26 gauge	7 00	6 75
24 gauge	6 70	6 45
22 gauge	6 65	6 40
18—20 gauge	6 40	6 15
10¾ oz.	7 00	—
28 U. S. base	6 50	—
26 U. S. base	6 25	—
24—22 gauge	6 10	—
20—18 gauge	5 90	—
16 gauge	5 75	—

Above prices are for ½ ton lots in English iron and 1000 lb. lots in American iron with an extra charge of 25c. for less quantities. Extra for sheets 3 ft. wide, 28 gauge and 10¾ oz., 20c. per 100 lbs. Further extra for sheets 4 ft. wide according to gauge.

TIN PLATE—	
20 x 28 x 100 lb. basis	12 35
20 x 28 IC, 112s	12 75
20 x 28 IX, 112s	15 00
20 x 28 IXX, 56s	8 50
20 x 28 IXXX, 56s	10 00
TERNE PLATE—	
20 x 28 IC, 112s, 200 lb.	13 50
20 x 28 IC, 112s, 214 lb.	13 00
CANADA PLATE—	
Half bright 52s	4 85
Half bright 60s	4 90
Blued 52s	5 10
Blued 60s	5 15
Welsh, polished, 52s	6 50
Welsh, polished, 60s	6 75
Galvanized 52s	7 25
Galvanized 60s	7 75

LITTLE CHANGE IN BAR PRODUCT MARKETS

Conditions on the local market for bar iron and steel might again be described as seasonably quiet with little or no variation in current prices. Some are still of the opinion that slightly easier quotations may develop in face of the dull period during the following months, while others point to the delivery problem as offsetting this tendency to a great extent.

BAR IRON—	
Common bar iron, 100 lbs.	3 15
Refined iron	4 65
Irish finish machinery steel	3 20
Mild steel	3 15
Single reeled machinery steel	5 25
Band steel	3 50 3 65
Spring steel	4 75 8 50
Sleighshoe steel	3 15
Tire steel	3 25
Harrow tooth steel	3 30
Toe caulk steel	4 05
Mining tool steel, per lb.	0 20½
Black Diamond tool and cast steel, per lb.	0 20¼

NOTE—Refined iron is approximately $1.50 per 100 lbs. over base, but fluctuates owing to unsettled market.

Band steel in scroll bundles, 50c per 100 lbs. extra.

RADIATORS AND BOILERS ENTER QUIETER PERIOD

Montreal.

Following a brisk trade during past months, radiators and boilers are now entering a quieter period, and sales have fallen off to quite an extent during the last week or so. This is not surprising and manufacturers describe the present movement as seasonal. There are also said to be prospects for a moderate amount of business in the following weeks.

Commenting on business this season one manufacturer stated that heating systems had been in good demand practically all through the past season and producers were well satisfied with records up until the present time. No change has been made in the following quotations:

RADIATORS AND BOILERS—

Radiator list prices are for 1, 2, 3, 4 and 5 column radiators, per sq. ft.

45 in. to 38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60. Discount 55 per cent for hot water, and 56 per cent for steam.

Wall radiators—5 ft., $1.15; 6 ft., $1.10; 7 ft., $1.05; 9 ft., $1.05; 12 ft., $1.05; Discount 52 per cent.

Boilers—Round hot water boilers, sizes from 0 to 10, 60 per cent. off list. Square or sectional hot water or steam boilers, 15 in., 15 per cent. Square or sectional water boilers, 19 in. to 36 in., 20 per cent. Square or sectional steam boilers, 19 in., to 36 in 17 per cent. Ontario Government trimmings, 15 per cent.

Round steam boilers, standard trimmings, 28 per cent. Ontario Government trimmings, 25 per cent.

F.o.b. Montreal, Toronto, Guelph.

INTEREST SUBSIDES IN CLOSET COMBINATIONS

Montreal.

Interest in closet outfits is now quieter, although distributors state that the movement is seasonal and taken altogether this season trade has been fairly satisfactory. Current quotations are nominally unchanged at following levels:

CLOSET COMBINATIONS—	each
Low down outfits,	
Closet, standard outfit, oak	25 00
Do., post hinge seat	26 00
Do., oak vitro or Pussyfoot	26 00
Do., post hinge seat	26 20
Do., mahogany vitro or Pussyfoot, post hinge seat and cover	28 45
Do., vitreous china, oak post hinge seat and cover	28 45
Do., vitreous china, mahogany post hinge seat and cover	29 50
Do., white Vitro mahogany post hinge seat and cover	29 50
Mahogany post hinge seat and cover	28 70
Do., enamelled iron tank, oak post hinge seat and cover	29 50
Do., enamelled iron tank, oak post hinge seat and cover	29 50
post hinge seat and cover	29 50
Add for ¾ in valve on supply pipe	1 25
Add for spud	0 60
Add for reverse trap bowl	1 50
Add for syphon jet bowl	7 00
Deduct for supply pipe	0 80
Deduct for floor hinge	0 60
CLOSET BOWLS—	
Richelieu bowl	8 50
Washdown bowl with spud	10 60
Reverse trap bowl with spud	11 35
Syphon jet bowl with spud	16 25
CLOSET SEATS—	
Oak post hinge seat and cover	3 85
Oak wood strip seat and cover	3 50
Mahogany finish post hinge seat and cover	4 05
CLOSET TANKS—	
Low down, oak vitro with fittings, less seat	12 25
White vitro or Pussyfoot with fittings, flush elbow and supply	15 65
Vitreous china tank with fittings, flush elbow and supply	19 00
Enamelled iron with fittings, flush elbow and supply	16 50

AVERAGE SEASONAL TRADE IN ENAMELED WARE

Montreal.

The appearance of winter weather has resulted in a falling off in enameled ware sales, and trade is now described as moderate although seasonal. There are, however, prospects of some activity during the following months as a certain amount of outside work was completed before the more severe weather set in and inside finishing is now under way. No changes in quotations have been made in these products and following are list prices and discounts:

ENAMELED WARE—

Sinks, roll rim—			
18 x 30			$23 00
Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$ 7 50	$ 7 40	$ 7 30
18 x 30	8 70	8 60	8 50
20 x 30	9 90	9 80	9 70
Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide			51 40
Bath tubs, 5½ feet			57 10
Lavatories—			
17x19 in. Apron F139 or P4045			15 30
18x24 in. Apron F154 or P3845 or P3847			23 60
18x21 in. Apron F169 or P4205			17 60
17x19 in. Roll rim. F241 or P4345			12 60

Less 33 1-3 per cent.

STEADY TONE IN MARKET FOR PIPE FITTINGS

Montreal.

Quotations on pipe fittings remain on a steady basis, with a fairly good movement reported for this time of year. There is a steady to firm undertone in the market, especially on galvanized fittings. Prevailing discounts are:

PIPE FITTINGS—

Cast iron fittings	27%
Plugs, cast iron	27%
Do., solid	27%
Do., countersunk	27%
Bushings, cast	30%
Do., malleable	30%
Unions	45%
Flanged unions	27%
Flanged fittings	27%
Dart unions, black,	33 1-3%
Dart unions, galv.	13%
Nipples, ⅛ to 4", close and short	55%
Do., long	60%
Do., 4½ to 8", close and short	45%
Do., long	50%
Couplings, 4" and under	25%
Do., 4½" and larger	5%

Malleable Fittings—

Piece list effective June 1st, 1922. Discount 70 per cent.

TRADE IS QUIETER IN BOILER TUBES

Montreal.

Only a fair amount of activity is now recorded in boiler tubes, following a period during the past few weeks when the movement showed some improvement. It is stated that only repair work of the smaller class is demanding supplies, although it was expected that the close of navigation would greatly stimulate sales. It is probable, however, that such requirements may be felt at a little later date. Following are average prices:

BOILER TUBES—

	Seamless	Lapweld
1 inch	20 00	....
1¼ inch	22 00	....
1½ inch	21 00	....
1¾ inch	24 50	24 00
2 inch	21 00	19 75
2¼ inch	24 00	22 25
2½ inch	27 00	23 25
3 inch	33 00	29 50
3½ inch	38 00	34 25
4 inch	49 00	43 50

FIRMER MARKET TONE DISPLAYED IN SOLDERS

Montreal.

Tin on primary metal markets continues in a very strong market position and solder prices are now described as firm. No changes are made at the present time but with the present tendency remaining in the virgin metal revisions in an upward direction would not be surprising. Spelter is also recorded as maintaining its more recent strength and lead is steady to firm. With these metals in their present position, other lead products are also placed on a firm market basis. Unchanged quotations are:

LEAD AND ZINC PRODUCTS—

Lead pipe, per 100 lbs., up to 2"	14 00
Do., 2" to 8"	15 00
Do., 8" and over	16 00
Lead waste, per 100 lbs.	15 00
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	15%
Lead wool, lb.	0 13½
Lead sheets, 2½ lbs., sq. ft. lb.	0 11
Lead sheets, 3 to 3½ lbs., sq. ft. lb.	0 10¾
Do., 4 to 8 lbs., sq. ft. lb.	0 10
Cut sheets, ¼c. lb. extra and cut sheets to size, ¾c. lb. extra.	
Solder, guaranteed, lb.	0 26½
Do., strictly, lb.	0 23½
Do., commercial, lb.	0 22½
Do., wiping, lb.	0 22½
Do., wire, lb.	0 36
Zinc, sheets, casks	0 11
Do., broken lots	0 11½

FAIR TRADE CONTINUES IN COMPRESSION GOODS

Montreal.

Current trade in brass valves and bibbs is again described as fairly good, and comparing favorably with last season for this time of year. Although winter weather is now hindering outside construction, many buildings are being rushed to completion and inside work is being carried out quite extensively. Quotations remain at unchanged discounts, and indications now are that a steady market will remain in evidence until after the first of the year at least.

VALVES—

Compression work, standard	45%
Fuller work, standard	30%
Quick opening compression bibbs	43%
Bath cocks, quick opening	41%
Bath cocks, compression	41%
Basin cocks, quick opening	46%
Flatway stop and waste cocks, standard	54%
Roundway stop and waste cocks, st'nd'rd	46%
Brass steam cocks, standard, ¼ in.	50%
Radiator valves, standard	58%
Do., removable discs	58%
Globe, angle and check valves, standard	25%
Gate or straightway	25%
Emco globe valves	33%
Emco check valves	33%
Jenkins globe, angle, check and swing check	10%
Jenkins gate or straightway	16%

Montreal.

Jenkins iron body, globe and angle	15%
Jenkins iron body, gate	25%
N. P. "O" and "S" traps	40%

STRENGTH SHOWN IN TIN AND SPELTER

Montreal.

The chief feature of the metal markets this week is the firmer tone in ingot tin and zinc, both of which have again registered advances in prices. In view of the strength of sterling exchange this naturally means higher delivered prices on the former metal. From all indications the gain is based on speculative activity on the London market.

TIN.—November statistics showed an increase in visible supplies of over 2,000 tons but, despite this, London has advanced sharply this week. It is thought possible that another effort will be made to boost prices, but this is difficult to say at the moment. The local market is necessarily stronger at 42½ cents.

COPPER.—This metal remains quiet but steady and it would be interesting to see whether the purchase of the Chile Copper Co. by Anaconda will have any effect on the market. Export business is not very brisk, and with domestic consumption certainly no greater than it has been, something would appear to be necessary to stiffen prices. Quotations are unchanged at 17¾ and 17½ cents.

LEAD.—There is little new in this metal, but the American market is quite firm with every indication of present prices being maintained. The English market is also steady with supplies reported as being none too large. Locally this metal is quiet at 7¾ to 8 cents.

SPELTER.—A resumption of English buying in the U. S. A. has caused prices to stiffen again, East St. Louis being quoted as about the high level of $7.35 reached some weeks ago. Whether or not the market will advance beyond this level is said to depend largely on export business, but at the present time the situation is strong. Market here is firm at 10 cents.

ANTIMONY.—There is little or no change to report in antimony, the market continuing quiet at 7 cents for Chinese and 7½ cents for high-grade English.

ALUMINUM.—This metal remains in a slightly improved market condition, although there is very little trading at the present time. Quotation is unchanged at 22 cents.

APPLICATION OF THE TERM "WROUGHT PIPE"

At one time the terms "wrought pipe" and "wrought-iron pipe" were virtually synonymous, as all pipe was originally made of wrought iron. The use of steel pipe, however, has increased so rapidly that now about 90 per cent. of the wrought pipe manufactured is made of steel. According to the National Tube Co., "wrought pipe" is a term that is applied to both steel and iron pipe, and a dealer in wrought pipe usually indicates that he sells pipe made of both materials. The term "wrought-iron pipe" means that the pipe is made of wrought iron, which is the product of the puddling furnace; while "steel pipe" is applied to pipe made of steel.

Toronto Markets

TORONTO, December 14.—Current price developments in plumbing and steam-fitting supplies centre around the trend of primary markets, rather than actual changes in prevailing quotations. From the viewpoint of future production costs levels, the further decline in pig iron is of interest. There is a rumor of further increases pending on cotton wastes, in addition to the higher levels announced in the last issue.

Local asbestos prices remain unchanged, although it is pointed out that owing to recent improvement in the asbestos market, any change in air cell pipe covering would undoubtedly be in an upward direction. Quotations still vary on radiator valves, no settlement having been attained. The quotation of 58 per cent. off is becoming more prevalent as this level is being met by those distributors who were formerly adhering to the lower figure.

ANOTHER REDUCTION IN PIG IRON PRICES

Toronto.

Another reduction is recorded this week in pig iron prices, the extent of the current decline being $2.00 per ton. This development is in line with the easier levels foreshadowed in former issues of Sanitary Engineer, and brings prevailing quotations to $30.80. It is pointed out, however, that the feeling prevails as to those levels being generally considered representative of existing values. Shipments of stocks of Scotch iron are stated to have ceased with the closing of navigation. Placing of orders for first quarter are reported at the revised levels. Just what effect this further reduction will have upon relative products is considered problematical, the situation in general being described as a natural step towards stability, a tendency more or less prevalent at this time.

LOOK FOR PRICE REVISION IN ASBESTOS

Toronto.

The asbestos market continues to gradually improve. No change has yet developed in local quotations, however, manufacturers stating that present discount levels are generally expected to stand for a week or two. There are indications that some revision will be made prior to the New Year, however. It is noted that eastern centres have already recorded certain advances. Following are prevailing prices:—

ASBESTOS PRODUCTS—

Pipe Covering—

Air cell, 4 ply	60 per cent. off list.
Air cell, 3 ply	65 per cent. off list.
Air cell, 2 ply	67½% off standard list.
Boiler Covering	$1.50 per bag.
Asbestos Sheathing	$7.75 per 100 lbs.
Magnesia pipe covering	less 40 per cent.

VARYING QUOTATIONS NOTED ON RADIATOR VALVES

Toronto

Some unsettlement still exists on the local market with regard to the prevailing quotation on radiator valves. As previously pointed out, a variation in discounts was apparent, certain distributors maintaining the level of 54 per cent. off, while others were adhering to the former levels of 58 per cent. The quotation of 58 is gradually becoming more general, as it is stated that this figure has to be met by those distributors who desire to adhere to the other price, because of the appearance and spread of the easier level. The opinion that some uniform quotation will be decided upon in the near future is also evident. Following are current discounts:

VALVES—	Per cent.
Compression work, standard	45
Fuller work, standard	30
Bath cocks, compression	41
Do., Fuller	25
Flatway stop and wastecocks, stand'd.	54
Roundway stop and waste cocks std.	46
Brass steam cocks, standard ½" to 2"	50
Do., 2½" to 3"	43
Globe, angle and check valves, std.	25
Mueller globe, angle and check	25
Mueller composition disc steam valves	33
J.M.T. valves, screwed	10|10
J.M.T. gate valves, screwed	16|10
Jenkins gate or straightway, screwed	16|10
Jenkins, globe, screwed	10|10
Radiator valves, standard	54 to 58
Do., removable disc	54 to 58
Emco, J. D., rad. valves, screwed	35
Emco swing check, ⅜" and ½"	40
Do., other sizes	33
Webber gate valves, screwed	33
Emco globe valves, std.	25
Emco globe valves, J.D., screwed	33
Basin Cocks—	
No. 0 and 1 Fuller pattern	30
Quick opening No. 3633	50
No. 3623, plain or index handle	34

RUMOR OF FURTHER INCREASES IN WASTES

Toronto.

The revised quotations on cotton wastes, continue to reflect the firm trend of primary markets. Distributors state that there may be some further upward price revisions on cotton wastes early in the New Year, such a development depending upon the movement of raw cotton and basic elements in general. Following are prevailing quotations:—

COTTON WASTES—	
Cream, polishing	0 19
White, XXX	0 19
XX	0 17
X	0 16
XC	0 14½
XXX, extra	0 17
XX, grand	0 16
XLCR	0 15
X, Empire	0 13½
X press	0 12
Colored, No. 1	0 13½
No. 17	0 12½
No 1A	0 11½
No. 1B	0 10½
Fancy	0 14
Lion	0 12½
Standard	0 11
Popular	0 09½
Keen	0 08

Above lines subject to trade discount for quantity

SEASONAL AVERAGE IN SOIL PIPE MARKET

Toronto.

Business in soil pipe and fittings is naturally quieter than it was formerly, owing to the lateness of the season. The basic materials continue on a steady trend and no change has been made in prevailing market levels. Discounts remain as follows:—

SOIL PIPE—	
2 inch	Less 33 1-3%
3 inch	Less 33 1-3%
4 inch	Less 33 1-3%
5 and 6 inch	Less 33 1-3%
8 inch	net
FITTINGS—	
2 to 6 inch	Less 45 per cent.

MODERATE TRADE IN LEAD AND ZINC GOODS

Toronto.

There have been some minor fluctuations in primary metals such as tin and spelter, but quotations on the finished products such as those listed below, have shown no variation on domestic markets. Lead and zinc goods are generally maintaining the higher levels recently recorded, it being pointed out that quotations on these lines were not advanced immediately when primary metal quotations began climbing. Some flucuations of the current nature were, therefore, more or less anticipated, although these metals have again recovered. The current movement of these products is described as fairly good for this time of the year, although the season's trade is moderate when compared with earlier records. Following are unchanged price levels:—

LEAD AND ZINC GOODS—	
Lead pipe, list, per lb.	0 14
Lead waste pipe, list, per lb.	0 15
Do., over 8 in., list, per lb.	0 16
Lead pipe is subject to a discount of ten per cent.	
Lead traps and bends, less 15 per cent.	
Lead sheets, 4 to 6 lbs., sq. ft. in rolls, lb. $0.09½—0.10.	
Cut sheets, ½c to ¾c lb. extra and cut sheets to size, 1c lb. extra.	
Solder wire, per lb.	0 31
Do., commercial, lb.	0 25
Do., strictly, lb.	0 23½
Do., guaranteed, lb.	0 26½
Do., wiping, lb.	0 23½
Zinc sheets, per lb. 0 11	0 12

DULLNESS KEYNOTE OF MARKET IN CORRUGATED

Toronto

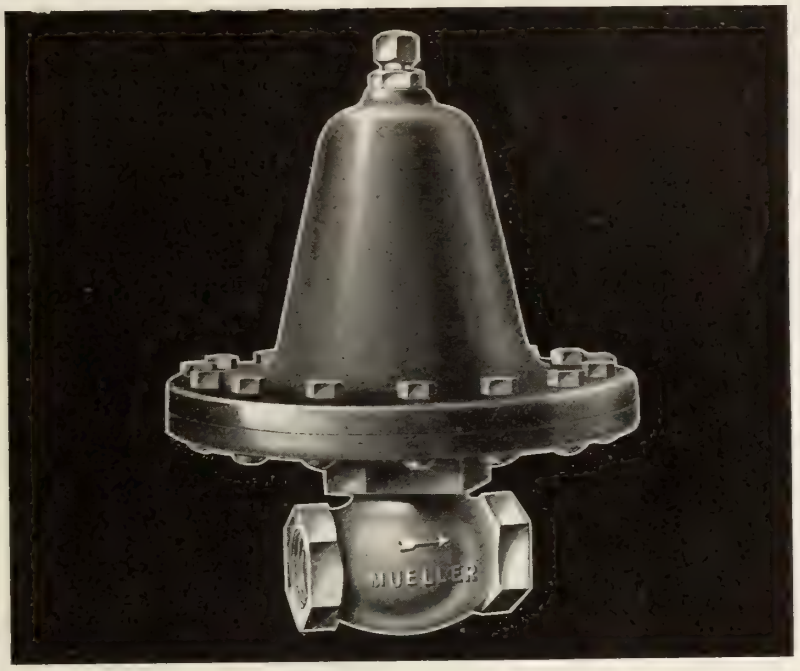
Dullness characterizes the current condition of corrugated sheets, the market being inactive at this period. With the completion of building schedules and the arrival of colder weather, prevailing interest is naturally on a subdued basis. No variation has been made in quotations, both lists and discounts remaining unchanged. It is pointed out that the inventory period also contributes to the low condition of stocks.

CORRUGATED SHEETS—	Per 100 Sq. Ft.
No. 28 gauge	6 50
No. 26 gauge	7 00
No. 26, U. S. gauge	8 00
No. 24 gauge	9 00
No. 22 gauge	11 00
No. 20 gauge	12 50
No. 18 gauge	16 50

Less 10 per cent.

Lighter than 24 gauge and wider than 27

(Continued on page 36)



Protection Against Excessive Pressure.

On all installations where protection is needed against excessive pressure Mueller Relief Valve A-5060 is most satisfactory. It is easily adjusted to relieve at any desired pressure and is very sensitive and positive in operation.

The Mueller Relief is completely dependable. There is no sticking even after long periods of inactivity.

It is also recommended for use on air tanks in gasoline and service stations where protection is required.

H. MUELLER MFG. CO., LIMITED, SARNIA, ONT.

Water, Plumbing and Gas Brass Goods and Tools.

American Factory at Decatur, Illinois, U. S. A. **Branches, New York and San Francisco**

Mueller Metals Co., Port Huron, Mich., Makers of "Red Tip" Brass Rod; Brass and Copper Tubing; Forgings and Castings in Brass, Bronze and Aluminum; also Screw Machined Products.

TORONTO MARKETS

(Continued from page 34)

FAIR SEASONAL ACTIVITY IN PIPE FITTINGS

Toronto.

The installation of fall and winter heating equipment has reflected in the current movement of pipe fittings to a seasonable extent, and distributors record a fair amount of activity is evident. This condition is slightly ahead of the movement noted at this time last year. No price revisions have been made, quotations on these products remaining on a steady basis during recent weeks.

PIPE FITTINGS—	Per Cent.
Cast iron fittings	27
Plugs, cast iron	27
Do., solid	27
Do., countersunk	27
Bushings, malleable	30
Do., cast	30
Unions, ¼ in. to 2 in	45
Do., ⅛ in., 2¼ to 4 in.	45
Flanged unions, std.	27
Flanged Fittings	30
Dart unions, blk., ¼ to 2 in.	34
Do., ⅛ in., 2¼ to 4 in.	28
Do., galvd., add to black	30
Nipples, blk., and galvd. ⅛ to 4 in. close and short	55
Do., 4½ in. and larger	45
Do., long, ⅛ in. to 4 in.	60
Do., 4½ in. and larger	50
Do., running thread	35
Couplings, 4 in. and under	25
Do., 4½ in. and larger	5

MALLEABLE FITTINGS—
New piece list, effective June 1, 1922.
Discounts, Classes, A.B. and C, less 70 per cent.

BOILER TUBES IN MODERATE DEMAND

Toronto.

Boiler tubes are now in moderate demand only, as it is pointed out that the former rush to obtain supplies for repairs and renewal of heating equipment for the cold weather months is now practically over. Supplies continue difficult to secure promptly, however, with prices generally remaining steady at the recently readjusted levels. Following are average prevailing local quotations:—

BOILER TUBES—

Size	Seamless.	Lapweld
¾ inch	$19 00	$.....
1 inch	20 00	.....
1¼ inch	22 00	.....
1½ inch	24 00	.....
1¾ inch	24 00	23 00
2 inch	22 00	19 00
2¼ inch	24 00	21 50
2½ inch	27 00	23 50
3 inch	34 00	28 50
3¼ inch	36 00	33 00
3½ inch	38 00	33 00
4 inch	50 00	42 00

MODERATE ACTIVITY IN BRASS AND COPPER

Toronto.

Manufacturers and distributors of brass and copper goods record a fair amount of activity for this time of the year. Current trading, however, is described as on a moderate scale, with the undertone of the market remaining fairly steady throughout recent weeks. The tone of primary metals has developed some minor fluctuations, but such changes are not yet considered of sufficient extent to affect the finished products such as sheets, rods and tubing. That some slightly easier levels may become apparent after the turn of the year is the opinion found in local distributing circles. Current quotations remain unchanged at the following levels:

BRASS—	
Sheets base, per lb.	0 23
Rods, base, per lb.	0 22
Tubing, base, per lb.	0 30
COPPER—	
Rods, base, per lb.	0 30
Soft sheets, plain, 1 oz. and heavier, lb.	0 29
Do., plain tinned, 16 oz. and heavier, per lb.	0 36
Do., polished, and tinned, 16 oz. and heavier, lb.	0 41
Tubing,	0 33

CONSERVATIVE TONE IN BAR IRON MARKET

Toronto.

There is little variation in current prices for bar iron and steel, but conditions are evidently such as to render consumers somewhat cautious until the market is more fully developed. According to local dealers, there appears to be no outstanding reason for price changing at the present time, in view of the somewhat conservative attitude of the market. Buyers still seem to be in control to a very definite extent, however, although difficult conditions surrounding production and delivery tend to loosen this attitude. Dealers report a good demand for interior building materials such as metal lath. There is the usual restricted volume of trade during the winter months.

IRON AND STEEL—		
Mild steel bars, base	3 25	3 40
Mild steel bands, 3-16 base	3 75	3 90
Bar iron, base	3 25	3 40
Angle, iron base	3 35	3 50
Horseshoe iron	....	3 90
Tire steel	....	3 50
Spring steel	7 00	8 00
Sleigh shoe steel	....	3 40
Toe caulk iron		4 10
Hoop Steel	....	4 75
Norway iron		12 50
Crucible cast sheet steel		28 00
Mining Drill steel		18 50
Cast tool steel, high grade		30 00

QUIETER TRADE FOR TROUGH AND PIPING

Toronto.

Business in eavestrough, conductor pipe and elbows is now falling away as regards volume, due to the arrival of cold weather and the consequent completion of building activity. Current trade is usually on a moderate basis at this time of the year, however. Quotations on these products remain unchanged, following being lists and discounts:—

TROUGH (EAVE)—

O. G. Square Bead—

Per 100 ft.		Per 100 ft.	
8 inch	$15 90	15 inch	$28 80
10 inch	17 70	18 inch	36 80
12 inch	21 20		

O. G. Round and Half Round

8 inch	16 90	15 inch	29 80
10 inch	18 70	18 inch	37 80
12 inch	22 20		

Less 70 per cent.

PIPE (CONDUCTOR)—
Plain, round or corrugated.

Per 100 ft. in 10 ft. lengths.	
2 in., in 10 ft. lengths, list	18 40
3 in., in 10 ft. lengths, list	22 30
4 in., in 10 ft. lengths, list	29 60
5 in., in 10 ft. lengths, list	40 00
6 in., in 10 ft. lengths	49 00

Less 70 per cent.

ELBOWS (CONDUCTOR)—

2 inch, list	5 25
3 inch, list	6 00
4 inch, list	10 50
5 inch, list	24 00
6 inch, list	29 00

Less 60 per cent.

ONLY FAIR TRADE IN CLOSET OUTFITS

Toronto.

"Only fair business is now evident in closet outfits and fixtures," stated one local distributor to Sanitary Engineer this week. This seasonal falling off in volume was attributed to natural conditions and it was also pointed out that the movement of these products has kept up in remarkably good shape over a more extended period than last year, owing to the amount of fall building. Prices have remained unchanged at the following levels:

CLOSET COMBINATIONS—	Each
Closet, standard outfit, oak	26 00
Do., with post hinge seat	26 20
Do., mahogany Vitro or Pussyfoot with mahogany post hinge seat and cover	28 45
Do., vitreous china, with oak post hinge seat and cover	28 45
Do., vitreous china, with mahogany post hinge seat and cover	28 70
Do., white Vitro or Pussyfoot, with oak post hinge seat and cover	28 45
Do., white Vitro or Pussyfoot with mahogany post hinge, seat and cover.	28 70
Do., enamelled iron tank with oak post hinge seat and cover	28 45
Do., enamelled iron tank with mahogany post hinge seat and cover	28 70
Additions or reductions to above:	
Add for reverse trap bowl	1 50
Add for syphon jet bowl	7 00
For ⅜ in. valve on supply pipe	1 50
Deduct for supply pipe	0 60
Deduct for floor flange and bolts	0 60
CLOSET BOWLS—	
Washdown bowl with spud	10 60
Reverse trap bowl, with spud	12 10
Syphon jet bowl, with spud	17 00
"Richelieu" bowl	10 50
CLOSET TANKS, low down, Oak, Vitro or Pussyfoot tank, with fittings, less seat	13 20
White Vitro or Pussyfoot tank with fittings, flush elbow and supply	15 65
Vitreous china tank with fittings, flush elbow and supply	18 00
Enamelled iron tank with fittings, flush elbow and supply	18 00
CLOSET SEATS—	
Oak post hinge seat and cover	3 85
Oak wood strip seat and cover	3 50
Mahogany finish post hinge seat and cover	4 05
Oak Richelieu seat and cover	3 50

ENAMELED WARE IN SEASONAL QUIETNESS

Toronto.

Enameled ware trade is recording a seasonal quietness in volume, which is more or less expected at this period of the year now that interior work on fall buildings is nearing the stage of completion. No price developments have been recorded on these products, the following levels prevailing on the local markets:

ENAMELED WARE—

Enameled Iron Baths, 3" roll rim, 4 ft,.			
4 ft. 6 in., 5 ft.			51 40
Do., 5½ ft.			57 10
Lavatories—			
17x10" Apron F139 or P4045			15 30
18x24" Apron F154 or P3845 or P3847			23 60
18x21" Apron F169 or P4205			17 60
18x21" Roll Rim, F197, F199 or P4655-6			15 40
17x19" Roll Rim, F241 or P4345			12 60
Sinks, Roll Rim, 16x24 in.			18 10
Do., 18 x 30 in.			23 00
Do., 20 x 30 in.			24 70
Sinks, Flat Rim—	3 only	2 only	1 only
16x24	$7 60	$7 70	$7 80
18x30	8 50	8 60	8 70
20x30	9 70	9 80	9 90

Above prices, list, less 33 1-3 per cent.

All steel enamel baths, 4 and 4½ ft.	$14.00
Do., 5 ft.	15 00
Do., 5½ ft.	16 75

Steel bath quotations are net.

(Continued on page 38)

Few people realize the tremendous selling power of classified advertising or the exceptional opportunity which it offers.

Hundreds of Sanitary Engineers to-day are carrying equipment for which they have no further need, yet many others could use this same equipment to good advantage and would be glad to buy at a fair price, if they but knew of it.

How to get buyer and seller together — that's the question. The answer is—SANITARY ENGINEER classified advertising service. Thousands of Sanitary Engineers throughout the country read the classified advertisements every issue. That's why they produce results surely and quickly.

If you want to buy, sell or exchange equipment.

If you want to sell or exchange your store.

If you want to buy a store.

If you are looking for a location.

If you need a competent journeyman.

If you are seeking a position.

In fact if you wish to buy, sell or exchange anything used in a plumbing and steamfitting shop or for any reason desire to quickly get in touch with other Sanitary Engineers, use SANITARY ENGINEER'S classified advertising service. The charge is ridiculously low—$1.50 for twenty-five words, 5 cents for each additional word.

Look For The Classified Column on Page 46

TORONTO MARKETS

(Continued from page 36)

WROUGHT PIPING REMAINS ON FIRM BASIS

Toronto.

Business in wrought pipe is described as easing off a little at the present time, this condition being naturally due to seasonal conditions, the inventory period, holidays, etc. Prices on piping are still very firm, however, manufacturers pointing out that certain raw materials remain somewhat difficult to obtain. The following list No. 57, continues to govern local markets:

WROUGHT PIPE

Price List No. 57. November, 1922.

Standard Buttweld Pipe S, C

Per 100 ft.

Size	Steel Blk.	Gen. Galv.	Wrot. Blk.	Iron Galv.
⅛ in.	6.00	8.00	....	....
¼ in.	3.96	6.00	7.20	9.30
⅜ in.	3.96	6.00	7.20	9.30
½ in.	5.02	6.55	7.31	8.93
¾ in.	6.10	7.82	8.86	10.70
1 in.	8.67	11.22	12.75	15.47
1¼ in.	11.73	15.18	17.25	20.93
1½ in.	14.03	18.15	20.63	25.03
2 in.	18.87	24.42	27.75	33.67
2½ in.	29.84	38.61	.....	.....
3 in.	39.02	50.49	.....	.....
3½ in.	50.60	64.40	.....	.....
4 in.	59.95	76.80	.....	.....

Standard Lapweld Pipe S/C

Per 100 feet.

	Blk. Steel	Galv. Gen.	Blk. Wrot.	Galv. Iron
2 in.	22.20	27.75	31.08	37.00
2½ in.	32.76	41.54	46.80	56.16
3 in.	42.84	54.32	61.20	73.44
3½ in.	51.52	65.32	73.60	88.32
4 in.	61.04	77.39	87.20	104.64
4½ in.	71.12	90.17	1.07	1.27
5 in.	82.88	105.08	1.24	1.48
6 in.	1.08	1.36	1.61	1.92
7 in.	1.40	1.79	2.07	2.50
8L in.	1.48	1.88	2.18	2.63
8 in.	1.70	2.16	2.51	3.02
9 in.	2.07	2.62	2.97	3.59
10L in.	1.92	2.43	2.82	3.39
10 in.	2.47	3.13	3.63	4.37

QUIETER TRADING IN SCRAP IRON AND STEEL

Toronto.

Local dealers report the call for scrap iron and steel quieter, and the tone softer. Hand-to-mouth buying is being done by consumers. Steel mills are taking heavy melting steel and turnings as needed. Cast scrap has gone down, foundries holding back orders. In scrap metals there has been a fair demand for red and yellow scrap. White metals have continued moving more actively. Demand for turnings and clippings in the red and yellow division has been quieter. Following are the usual averages of dealer's current buying prices for fairly large quantities:

SCRAP MATERIALS—

Scrap Iron

Heavy melting steel	10 00
Scrap pipe	7 00
Steel turnings	10 00
Malleable scrap	10 00
Rails scrap	11 00
No. 1 cast	18 00
Stove plate	14 00
Car wheels (cast)	14 50

Scrap Metals

Heavy copper wire	11 00
Light copper	9 00
No. 1 composition	9 00
Red brass turnings	7 00
Light brass	4 50
Heavy yellow brass	5 25
Heavy lead	4 50
Tea lead	3 00
Scrap zinc	3 50

Scrap Rubber

Boots and shoes	2 25 2 75
Hard rubber goods	1 50 1 75
Auto tires	6 25 6 50
Soft rubber	0 50 1 00

ONLY OCCASIONAL TRADE IN CEMENT

Toronto.

Only occasional trade is now recorded in cement at this time of the year. Current conditions are comparatively dull, now that construction work is practically completed for the year. No change has been made in quotations, the following being existing local levels:—

CEMENT—

Car load lots.	**Toronto.**
Per barrel, delivered	3 63
Less car lots.	
Per barrel, f.o.b. yard	4 35
Per barrel, delivered	4 55

Single bags, $1.15 each; 4 bags to barrel.

Extra charge of $1.50 per load on less than 24 bag lots.

Rebate of 20 cents for empty sacks.

SLACKENING OF ACTIVITY IN RADIATORS

Toronto.

While seasonal business is recorded in radiators and boilers, there has been a noticeable falling off in volume from the brisk activity evident earlier in the season. Current orders, however, are described as in fair proportion. Some interest is attached to production costs in view of the easier trend to present pig iron price levels, but producers indicate that the former upward trend of quotations on radiators and boilers was based upon earlier costs of basic raw materials, and therefore current developments in pig iron fail to produce any easier trend in the market for the finished products. No change has been made in either lists or discounts, the following levels being described as firm:

RADIATORS

Revised radiator list prices are for 1, 2, 3, 4 and 5-column radiators per square foot.

38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60.

Discount on 2, 3, 4 and 5 column standard sizes, 55 per cent. for water and 56 per cent. for steam.

Discount on 1-column standard size, and 2, 3, and 4-column hospital sizes 47 per cent for water and 48 per cent for steam.

Discounts on 1-column hospital size, water 33 per cent.; steam, 34 per cent.

Wall radiators—5 ft., $1.15; 6 ft., $1.10; 7 ft., $1.05; 9 ft., $1.05; 12 ft., $1.05. Discount 52 per cent.

BOILERS—

Water:

Round 60 per cent. off list. Square 20 per cent. off list.

Steam:

Round, 25 per cent. off list; Square, 15 per cent. off list.

AVERAGE TRADE RECORDED IN SHEET MARKETS

Toronto.

There has been no change in current sheet prices, but the domestic market is described as slightly firmer. There is a steady demand for this season of the year, and distributors state that, on the whole, business remains fairly good. The fact that former price levels for sheet and tin plate in the U. S. market continue unchanged for first quarter shipment, has brought some disappointment in certain quarters where advances were more or less expected. It is pointed out, however, that production is being maintained at a comparatively high rate, while delivery conditions have undergone a slight improvement.

It is noted that, while current business in tin plate was more or less of a restricted character, the recent information that quotations would most likely remain unchanged for first quarter has brought about considerable new buying. Plans for greater production by various automobile manufacturers resulted in expectations for greater business in finished sheets throughout primary markets.

GALVANIZED SHEETS—

	Premier and Apollo
10¾ oz.	6 65
U. S. 28 base	6 25
U. S. 26 base	5 95
22 and 24	5 80
18 and 20	5 65
16	5 50
12 and 14	5 35
	Queen's Head
28 gauge base	7 15
26	6 75
24	6 45
22	6 30
	Fleur de Lis
28 gauge, base	6 90
26	6 50
24	6 20
22	6 05

An extra 40c. per 100 lbs. is charged for Keystone and Premier bands copper-bearing sheets.

An extra is now charged on galvanized sheets. 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown in 20c. per 100 pounds.

BLUE ANNEALED SHEETS—

10 gauge, base	4 20
12 gauge	4 25
14 gauge	4 30
16 gauge	4 35

BLACK SHEETS—

18-20 gauge	4 90
22-24 gauge	4 95
26 gauge	5 00
28 gauge	5 10

A charge of 25c. per 100 lbs. is made for less than case lots. An extra 10c. per 100 lbs. is **also charged on sheets 26 in. wide.**

PLATES, CANADA—	Per box
Ordinary, 52 sheets	4 90
Dull, 60 sheets	5 00
Blued and oiled, boxes 52's	5 50
Do., boxes, 60's	5 60
WELSH CANADA PLATES—	
Cold polished, 18 x 24, 52's	6 25
Cold polished, 18 x 24, 60's	6 50
PLATES, COKE TIN—	
IC, 20 x 28, 112 sheets	12 45
IX, 20 x 28, 112 sheets	15 00
IX, 20 x 28, 56 sheets	8 50
PLATES, CHARCOAL TIN—	
IX, 20 x 28, 112 sheets	10 00
IXX, 20 x 28, 56 sheets	12 00
PLATES, TERNE—	
IC, 14 x 20, 112 sheets	12 00

STRONG UNDERTONE IN RANGE BOILERS

Toronto.

While current business is described as a little quieter in range boilers, there is quite a comfortable margin of trade for this season of the year, according to manufacturers and distributors. The impression is also noted that producers are now in a better position for keeping up with the current demand, although no marked increase in stocks is evident. Prices continue on a firm basis, this reflecting the tendency in raw materials and replacement costs. No change has developed from the following list and discounts.

RANGE BOILERS—

Size.	List Price.
5-gallon	**$13 50**
12 to 15 gallon	**14 00**
18-gallon	**15 00**
25-gallon	**16 50**
30-gallon	**17 50**
35-gallon	**20 50**
40-gallon	**22 75**
52-gallon	**38 00**
66-gallon	**60 75**
82-gallon	**74 00**
100-gallon	**103 00**
120-gallon	**117 00**
144-gallon	**164 00**
168-gallon	**187 00**
192-gallon	**210 00**

Discounts, Standard weight, 40 per cent. Extra heavy, 20 per cent.

(Continued on page 40)

BEAVER BRAND
Porcelain Enamel Ware
—*Your Guarantee of Quality*—

Beaver Brand Enamelware by its ability to meet the highest demands for service under all conditions, has established itself in the confidence of the public to such an extent that each month witnesses an ever-increasing demand for products of Beaver manufacture.

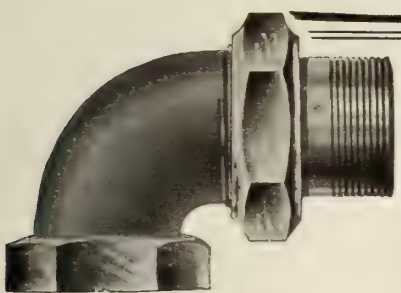
Amherst Foundry Co., Limited

General Offices and Factory : Amherst, N.S.

Agents :

ONTARIO:
Monarch Brass Mfg. Co.
71 Brown St., Toronto

MANITOBA AND NORTHWEST:
E. B. Plewes
197 Princess St., Winnipeg



Radiator Union Elbows — Brass
No. 41.

Kerr N. P. Union Elbows for Radiators

In construction, design and quality of material and workmanship, these Elbows are equal to our popular line of Radiator Valves.

They have the standard angle or centre to face, and assemble on Radiators with equal facility with our Standard Steam and Hot Water Radiator Valves, thus avoiding pipe fitters' troubles with valves of long or short centre to face dimensions. Kerr Union Elbows and Union Radiator Valves make for a first class heating job.

Each Valve and Elbow is tested before it leaves our works.

Ask for them, and see that you get them.

The Kerr Engine Co., Limited

Valve Manufacturers - Walkerville, Ontario

TORONTO MARKETS

(Continued from page 38)

INGOT METALS RETAIN BETTER POSITION

Toronto.

The non-ferrous metal market shows no outstanding feature locally and domestic demand continues on a moderate basis. Copper is firming up again. Another sharp rise is recorded in tin on outside markets. Spelter quotations are considered strong and likely to record further increases.

COPPER.—Consumers of copper are exhibiting a recovery of interest this being attributed to recent developments which tend to strengthen the position of producers. The expectation that some firmer prices will be recorded in the near future under the pressure of any continued movement in this direction is now prevalent.

TIN.—There have continued certain fluctuations in the London tin prices but this has been largely offset by the advance in sterling exchange. The domestic market is quiet, but the price trend has shown little variation, the local level being unchanged. A recovery on outside centres is generally looked for.

LEAD.—Prices on this metal continue on a steady basis, but the upward tendency is not nearly so distinct as formerly. Consumers are evidently well covered at the present tme for their needs. This condition is different from that of a month or so ago, when consumers were seeking the market on account of slow receipts from the producers.

SPELTER.—The domestic zinc market remains quiet but the general position is described as fairly steady. There has been little change in either local or primary market prices, although the tone of certain outside centres is reported as slightly easier.

ANTIMONY.—This market locally is dull with primary centres also recording a quiet condition. The current demand is just on a moderate scale. Prices, however, remain unchanged.

ALUMINUM.—Inquiries for aluminum are relatively few, but the market in general continues on a steady basis, with quotations at former levels.

INGOT METALS—

Copper	17 25
Tin	41 00
Lead	7 50
Spelter	9 50
Antimony	8 50
Aluminum	22 00

Winnipeg Markets

WINNIPEG, December 14.—Movements towards higher price levels are again in the majority on the current plumbing and steamfitting supply markets. Galvanized range boilers have advanced, although local jobbers are still selling at the old quotations, but an increase is expected very shortly. Cotton waste has also moved upward. The demand for eavestrough, soil pipe, fittings, conductor pipe and similar goods used in construction and repair work is now falling off owing to building activities ceasing with the arrival of cold weather.

INCREASED PRICES APPEAR ON COTTON WASTES

Winnipeg.

A slight advance has been reported in quotations on cotton waste. Following are the latest quotations.

COTTON WASTE—

NEH Full bales	16 00
Broken quantities, per lb.	0 17
10-lb. packages, per lb.	0 18½
REM Full bales	18 75
Broken quantities, per lb.	0 20
Colored Cotton, full bales	13 50
Broken quantities, per lb.	0 14½
Wool Waste, full bales	20 00
Broken quantities, per lb.	0 21

FLUE BRUSHES NOW AT LOWER PRICES

Winnipeg

Flue brushes can now be obtained at slightly lower quotations. Flue brushes 4 inches in diameter are quoted at $4 and 2½ inches in diameter are quoted at $3.20.

AN ADVANCE IN RANGE BOILERS EXPECTED

Winnipeg

There is a firm tone to range boilers and although manufacturers have advanced their prices on same, jobbing houses are still quoting at the old price. An advance is expected to be put into effect at any time.

NO CHANGE IN CORRUGATED SHEETS

Winnipeg.

With colder weather the demand for corrugated sheets is seasonable and prices show no change.

TRADE SUBSIDES IN TROUGH AND PIPE

Winnipeg.

Curent trade in eaves trough and conductor pipe is described as falling off with the arrival of colder weather. The demand for this line is subsiding due to the fact that building in general has practically reached the stage of completion. Quotations remain unchanged.

PRICES UNCHANGED ON CLOSET COMBINATIONS

Winnipeg.

Current trade in closet outfits is reported quiet as building construction is practically finished for this year. No changes have been made in quotations on these products and prices remain steady.

FT. WILLIAM WATER SO PURE IT EATS GALVANIZED TANKS

Fort William, Ont.—So great has been the mortailty rate among the hot water tanks used in the homes of Fort William that the attention of the executive of the board of trade was called to it, and a request sent to the city council to have an analysis made of Loch Lomond water, with a view to ascertaining the cause and finding a cure for the epidemic among galvanized tanks. If the water could eat away the insides of an iron tank it was argued that nothing short of copper-lined human insides could stand up against corrosion. The answer to the question is that such is the purity of the water from Loch Lomond that no sediment forms on the lining of tanks and they are exposed to the full oxidizing influence of aerated water, which is some oxidizer. The city council handed the inquiry to Dr. N. O. Thomas of the provincial laboratory, who sent it on to A. V. Delaporte, chemist in charge of the experimental station of the provincial board of health, Toronto. His reply was that the addition of lime may be necessary to offset the oxidization, or an open storage basin constructed for aeration purposes. The inquiry is continuing. The fact that a city's water is actually too pure is something new in municipal experience.

WHY SEWAGE DOES NOT FREEZE

(Continued from page 21)

What takes place on a sewage disposal bed is this: Two classes of bacteria are brought into action. When, for example, a bed is flooded with sewage, there may be a few anaerobic bacteria present; this first becomes active, breaking down any solid particles in suspension in the effluent, gasifying and fully liquefying same, and, as the moisture is either drained, absorbed, or even evaporated by the sun and heat of the ground, the aerobic bacteria completes the work of nitrifying the other compounds present. This action is the germ life so very necessary to the successful disposal of sewage.

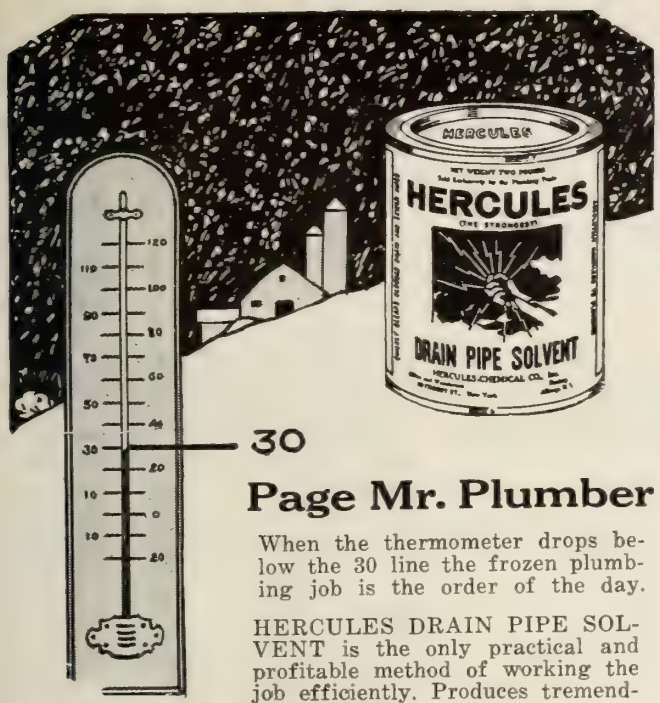
The accompanying illustrations describe clearly all the information regarding the sizes of a septic tank suitable for a house occupied by a family of 10 persons.

The amount of 4-inch field tile pipe for such a size of septic tank would be 540 lineal feet. The syphon will discharge 270 gallons of sewage at each operation.

(To be continued in next issue)

STARRETT HAND VISE

The new Starrett hand vise, No. 200, placed on the market by the L. S. Starrett Co., Athol, Mass., is said to have a wide range of usefulness in the machine shop, garage and home. It is claimed to be particularly suitable for work around speed lathes, drill presses, etc.



Page Mr. Plumber

When the thermometer drops below the 30 line the frozen plumbing job is the order of the day.

HERCULES DRAIN PIPE SOLVENT is the only practical and profitable method of working the job efficiently. Produces tremendous heat—*thaws all the way down.*

NO FUMES-WORKS WITH COLD WATER

Sold Only to the Plumbing Trade At Your Jobbers

Distributor:
W. H. CUNNINGHAM & HILL, Ltd.

Western Canada Representative:
W. F. HILL, JR.
268 Carlton St., Winnipeg, Man.
Phone A. 6237.

Eastern Canada Representative:
A. H. WHEELER
326 Selby St., Westmount, Montreal, Que
Phone, Westmount 1376.

Quality The Beaton and Cadwell Mfg Co New Britain Conn *Service*

Reliable Floor and Ceiling Plate

No. 10-A Narrow Flange Plate, Steel Hinged. Flanges 3-4 ins. wide Highly finished.

Designed for twin connection "narrow."

Now in great demand Ask us about it—m, also

GEM NO. 4 AUTOMATIC AIR VALVE.

The best brass obtainable is used and equipped with finest grade cabbo.

Mechanism is perfect. Write us for catalogue.

GEM NO. 4.

The Beaton & Cadwell Mfg. Co.

NEW BRITAIN, CONN., U.S.A.

Canadian Agents:

J. R. DEVEREUX CO., 233 St. James St., Montreal.

A. E. HINDS & CO., Chamber of Commerce, Winnipeg.

L. N. VANSTONE, 8 Wellington St. E., Toronto, Ont., Canada.

The Everlasting Veneer Toilet Seat

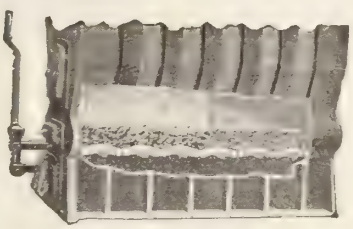
Strong, Clean Hygienic

This reliable, dependable toilet seat is made of 7 and 9-ply, air-seasoned wood veneer, held together by our special wood cement. This cement is proof against heat, cold or dampness. The veneering is distributed according to the strain and wear required of the different parts. The Everlasting Seat will never crack, warp or split.

It is a splendid seat for use in cold, damp basements where closets must be installed. The Everlasting Toilet Seat will meet, and successfully resist, these severe conditions of moisture, changing temperature, etc.

Canadian Veneering Company, Incorporated

Acton Vale Quebec



Ever see two boilers in one?

That's what Burnham Boilers are. Great big man's size heat givers for cold, bleak days. Or on uncertain spring days they run at half time just as economically as when at full blast. The grates shake half at a time, so you could run half the boiler at a time.

Write us for complete information.

Lord & Burnham Co. Limited of Canada

(Boiler Department)

Harbor Commissio, Bldg., Toronto

Burnham Cosy Comfort Heat BB

Factory: St. Catharines Ontario

Classified Buyers Guide

AIR LINE SYSTEMS
C. A. Dunham, Co., Ltd., Toronto.
United Brassfounders & Engineers, Ltd., Manchester, Eng.

ALUMINUM CASTINGS
Fittings, Limited, Oshawa.
Canada Metal Co., Ltd., Toronto.

AIR VALVES
Beaton & Caldwell Mfg. Co., New Britain, Conn.
W. H. Cunningham & Hill, Ltd., Toronto.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
J. H. Wiliams Co., Brooklyn, New York.
United Brassfounders & Engineers, Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.

BATHROOM FITTINGS
Canada Metal Co., Ltd., Toronto.
Gendron Mfg. Co., Toronto.

BENDING SPRINGS
W. H. Cunningham & Hill, Ltd., Toronto.

BOILERS, STEAM OR HOT WATER
Gurney Foundry Co., Limited, Toronto.
Lord & Burnham Co., Ltd., Toronto.
Spencer Heater Co., Ltd., Toronto, Ont.
Warden King, Ltd., Montreal.

BOILER FEED REGULATORS
Empire Mfg. Co., London and Toronto.
C. A. Dunham Co., Ltd., Toronto.
Grant E. Cole Co., 23 River Street, Toronto.

BOILER STANDS
Fittings, Limited, Oshawa.

BOLTS, EYE
J. H. Williams & Co., Brooklyn, N. Y.

BOLTS AND NUTS
Fittings Limited, Oshawa.

BRASS GOODS, VALVES, ETC.
Canadian Brass Co., Ltd., Galt, Ont.
Canada Metal Co., Ltd., Toronto.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg., Co., Ltd., London and Toronto.
Fittings, Limited, Oshawa.
Galt Brass Co., Limited, Galt.
Kerr Engine Co., Ltd., Walkerville.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto. Hamilton.
United Brassfounders and Engineers, Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd,. Wallaceburg, Ont.
Wolverine Ltd., Toronto. Ont.
W. H. Cunningham & Hill, Ltd., Toronto.

BRASS PIPE AND TUBE
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Wolverine. Ltd., Toronto, Ont.

CASTINGS
Canada Metal Co., Ltd., Toronto.
Fittings, Limited, Oshawa.

CELLAR DRAINERS
Galt Brass Co., Limited, Galt.
Empire Mfg. Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto, and Hamilton.

CIRCULATORS
J. H. Williams & Co., Brooklyn, N. Y.
Grant E. Cole Co., 23 River Street, Toronto.

CHAINS
Fittings, Limited, Oshawa.
J. H. Williams & Co., Brooklyn, N. Y.

CLOSETS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
Galt Brass Co., Limited, Galt.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg., Co., Ltd., Toronto. Hamilton.

CONDENSATION UNITS
C. A. Dunham Co., Ltd., Toronto, Ont.
The Westco Pumps, Limited, Toronto.
Grant E. Cole Co., 23 River Street, Toronto.

COUNTRY RESIDENCE EQUIPMENTS
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Sarnia, Ont.

COUPLINGS
Canada Metal Co., Ltd., Toronto.
Fittings Limited, Oshawa.

DAMPER REGULATORS
C. A. Dunham Co., Ltd., Toronto.

DRAINAGE FITTINGS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings Limited, Oshawa.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto. Hamilton.
United Brassfounders & Engineers, Ltd., Manchester, Eng.
Warden King, Ltd., Montreal.

DRAIN PIPE SOLVENT
W. H. Cunningham & Hill, Ltd., Toronto.
Hercules Chemical Co., Inc., New York City.

DRINKING FOUNTAINS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg., Co., Ltd., Toronto. Hamilton.

DROP FORGINGS
J. H. Williams & Co., Brooklyn, N.Y.

EJECTORS, STEAM
Kerr Engine Co., Walkerville.
United Brassfounders & Engineers, Ltd., Manchester, Eng.

ENAMELWARE
Amherst Foundry Co., Ltd., Amherst, N.S.
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto. Hamilton.
Port Hope Sanitary Mfg. Co., Ltd., Port Hope.
Standard Sanitary Mfg. Co., Ltd., Toronto.

ELECTRIC PUMPING MACHINERY
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

EXPANSION TANKS
Toronto Hardware Mfg. Co., Ltd., Toronto.

FITTINGS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings Limited, Oshawa.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto. Hamilton.
United Brassfounders & Engineers, Ltd., Manchester, Eng.
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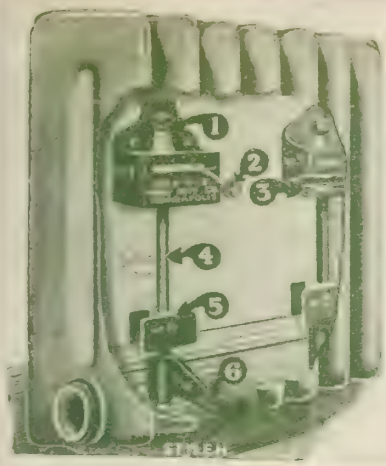

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Heartiest Greetings
and
Good Wishes

In calling to mind the many pleasant transactions we have had with the wholesale and retail trade during 1922, we feel it is a difficult task to express our thanks and good wishes in mere words.

Can only say we are glad to be with you. We sure get a lot of fun and satisfaction out of taking care of your orders and we wish you one and all

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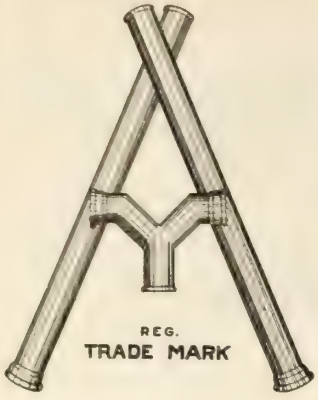

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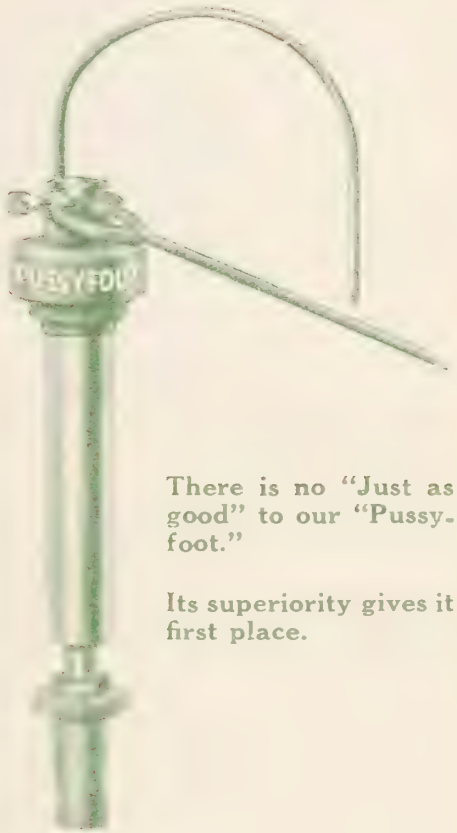

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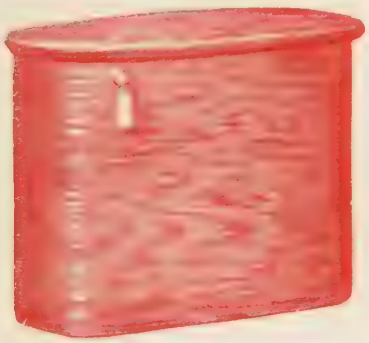

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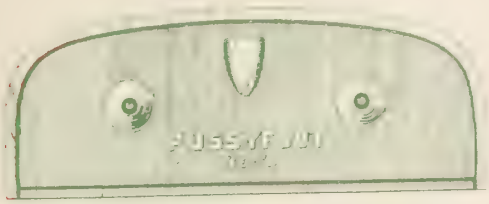

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and a

Happy New Year

to our good friends in the trade

May 1923 bring you

Prosperity.

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